

The financial stability index – An insight into the financial and economic conditions of Romania

Claudiu Mihail MANOLESCU

The Bucharest University of Economic Studies, Romania
claudiu.manolescu@gmail.com

Elena MANOLESCU

The Technical University of Civil Engineering of Bucharest, Romania
elena.manolescu@gmail.com

Abstract. *The goal of this paper is to quantify the index of financial stability linking it with macroeconomic indicators for Romanian economy. The index is intended to analyze the relationships between the main indicators of the banking sector and the most relevant macroeconomic indicators. The Financial Stability Index synthetizes the balance state and evolution of a complex of financial variables as well as the impact of the banking system stability upon the real economy. In this paper we intend to construe the Financial Stability Index (FSI) by using the VAR auto regressive method.*

Keywords: financial, stability, index, nonperforming loans, banking.

JEL Classification: C43, C53, E50.

1. Introduction

In this paper we intend to approach the notions of financial stability applicable to the current economic context from a predictable perspective for a short future period of time. For this purpose hereinafter we will define and quantify the Financial Stability Index (FSI) as a mean of studying the convergence of the financial and banking system in the general current macroeconomic context.

This indicator is intended to project the most representative financial and banking indicators used in the real economy. The data frequency taken into account is quarterly, and for the cases where these data were unavailable we had to resort to their seasonal extrapolation.

Taking as a reference point the notion of financial stability as outlined in the published literature, we intend to analyze the theoretical notions aimed at identifying the main financial and banking indicators considered to be truly relevant for both micro-economics and macro-economics. In choosing their selection criteria we have taken into account the Romanian banking system specifics related to:

- Its systemic structure.
- The mostly used current financial operations and the types of the beneficiaries of these financial services.
- The banking industry regulations aimed at directly stabilizing the financial market.

In establishing and interpreting the indicators that define the financial stability we have also taken into consideration several aspects from the “Report on Financial Stability” published by the National Bank of Romania in April 2016.

2. Theoretical aspects

2.1. Financial stability – concept and importance

There are numerous definitions of “financial stability”, most of them having in common the fact that the financial stability implies the lack of those episodes (crises) that disturb the financial system and render it incapable of adjusting itself to the stress factors.

The necessity to define the notion of “financial stability” has emerged within the actual context of economic development pursuant to the deep financial crisis that affected the whole world economy. The mechanisms that trigger a financial crisis are identified on the same time with the mechanisms that help rebalance the finance relationships existent in the period of building up confidence in and relaunching the real economy. “The National Committee for Financial Stability” (CNSF) was created for this purpose in Romania in 2007.

In the process of defining the notion of “financial stability” we will take into consideration both references from the official institutions involved in keeping the financial relationships balance and the most representative definitions substantiated by published literature.

Thus, The Central European Bank has stated that “*financial stability is a state whereby the build-up of systemic risk is prevented*”. From this organization’s point of view “*systemic risk can best be described as the risk that the provision of necessary*

financial products and services by the financial system will be impaired to a point where economic growth and welfare may be materially affected". (<https://www.ecb.europa.eu/ecb/tasks/stability/html/index.en.html>)

Therefore, a certain financial system is considered to be stable when it is capable of rather facilitating than preventing economy performance and dissipating the financial imbalances appeared as a result of some internal system developments, adverse or significant unforeseen events (Schinasi, 2004).

The World Bank considers that *“the true value of financial stability is best illustrated in its absence, in periods of financial instability. During these periods, banks are reluctant to finance profitable projects, asset prices deviate excessively from their intrinsic values, and payments may not arrive on time. Major financial and banking instability can lead to bank runs, hyperinflation, or a stock market crash. It can severely shake confidence in the financial and economic system”*. (<http://www.worldbank.org/en/publication/gfdr/background/financial-stability>)

The Governor of the National Bank of Romania, Mugur Isărescu, in his paper “Prices Stability and Financial Stability” (2006), writes that financial stability has both a wide and a limited sense. In a wide sense, with reference to the general performance of the financial system, financial stability is the situation when the financial system is able to efficiently attract and allot monetary assets as well as to absorb “shocks” without damaging the real economy. In a limited sense (in the sense of avoiding crises), financial stability is the situation when banking crises do not occur, and the assets prices and especially the interest rate are highly stable (Isărescu, 2006).

Taking into account all the above definitions, we can conclude there is no widely accepted definition of the notion of financial stability, but there are various interpretations of this concept. In the published literature financial stability has been frequently explained by examples of financial instability situations and their generating factors being given. Thus Goodhart (2006) defines financial instability as a situation where there exist high default rates and low profit rates in the banking system. Among the financial instability generating factors there are the overly optimistic economic forecasts that lead the financial and banking organizations into acquiring very high risk portfolios. Therefore these institutions become vulnerable to systemic shocks and are in danger of going into payment default. (Bhattacharya et al., 2011; Brunnermeier, 2008)

There are however three elements unanimously accepted: the financial system components, the risks that affect these components and contagion.

The financial system components are:

1. Financial markets (monetary market, capital market).
2. Financial intermediaries (banks, insurance companies).
3. Financial infrastructure (payment systems, clearing houses).

These components allow an efficient allotment of the resources in an economy if the risks that could affect them and the entire system are detected.

The main risks are:

1. A slowdown of the economy dynamics (could cause losses for the banks due to the difficulties in paying back the loans as a result of diminished sales or wages);
2. Variations in the price of the financial assets (could cause financial losses to the investors);
3. Decline of an economy sector that previously represented a focal point for banks and investors.

Should this kind of risks spread between economy sectors, domestically or internationally, independently from the structural connections or current disturbances, contagion occurs.

The loss of financial stability takes place when the financial system components have been affected by the inter-sectorial spread risk. (Dănilă, 2011).

2.2. Prudential measures

In order to keep the financial stability under control, macro and micro prudential measures must be separately enforced by the central banks on the one hand and financial institutions on the other hand. In this process the particularities of each national economy must be observed (Brunnermeier et al., 2009).

In order to prevent and discard the financial instability generating risks within the Romanian banking system, “The Macroprudential Measures Adopted by the National Bank of Romania Regarding the Implementation of Capital Buffers” came into force in 2016. In this context and on the recommendation of the National Committee for Financial Stability, “*the National Bank of Romania introduced additional capital requirements consisting of: the capital conservation buffer; the countercyclical capital buffer; the capital buffer for other systemically important institutions (the O-SII buffer); the systemic risk buffer. The activation the above mentioned capital buffers is expected to be beneficial both for each credit institution by increasing the resilience to possible adverse developments, as well as for the whole banking sector by strengthening the financial stability*”. (<http://www.bnr.ro/The-macroprudential-measures-adopted-by-the-National-Bank-of-Romania-regarding-the-implementation-of-capital-buffers-13733.aspx>).

These measures are intended to strengthen the banking system against the external shocks generated by external financial imbalances and alleviate the economy’s cyclical evolution shocks. Within the context of a potential future financial crisis, these measures are intended to sustain the real economy financing and diminish the crisis effects. These measures are enforced in accordance with the “Basel III” set of reformed measures related to capital adequacy. “Basel III” sets out standards for the banking system aiming at creating a better capital base by requiring the increase of the minimal common equity and minimal level 1 own funds. On the same time strict eligibility criteria for instruments determining the level 1 own funds have been adopted.

For this purpose, The National Bank of Romania (NBR) introduced further requirements for:

1. Cover for risks, especially for those highlighted during the crisis period such as exposures in the trading book.
2. Counterparty credit risk, securitized exposures and securitization exposure;

3. Limitation of the leverage effect as an additional measure for the capital requirements calculated by taking risks into account.
4. Set out of an international financial liquidity standard able to confer resistance to shocks/liquidity crisis on a short term (30 days) and a solid structural liquidity standard for a long term (one year). (Report on Financial Stability, NBR, 2011)

The Bank for International Settlements, through “Basel III” Agreement, has set out measures in connection with micro and macro-prudential policies aiming at:

1. Preventing an excessive pile up of risks generated by external factors and market deficiencies in order to alleviate financial cycle fluctuations (temporal dimension).
2. Increasing the financial sector resistance and limiting the contagion effects (transversal dimension) – micro-prudential measures.
3. Encouraging a general perspective at system level in the financial regulation field in order to create an adequate incentives set for the market players (structural dimension) – macro-prudential measures.

The two approaches of the supervision complement each other in the sense that an increased bank resistance to the contagion effect ensures a lower systemic risk. (<http://www.bis.org/bcbs/basel3.html>)

2.3. Correlation between the financial stability and real economy

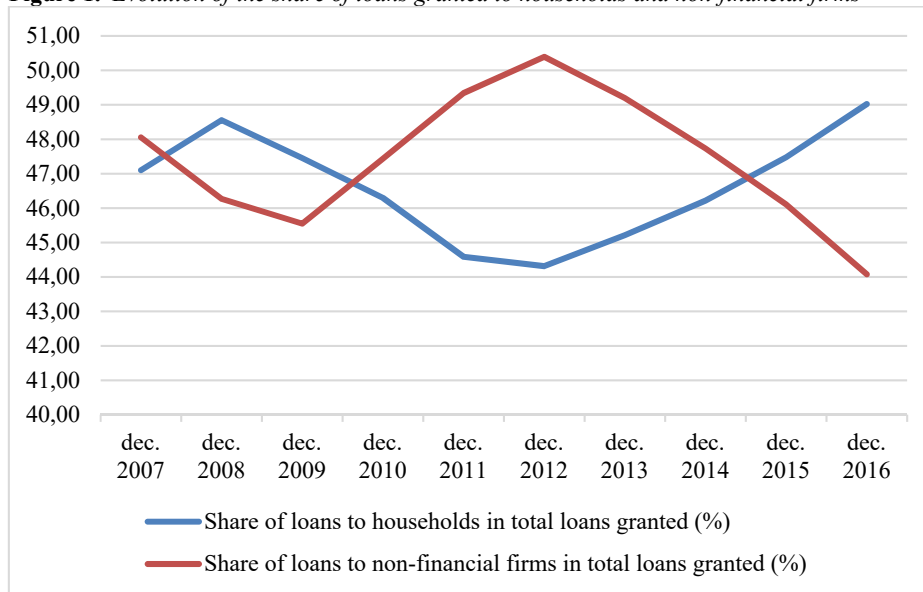
Financial stability is essential for economic growth because most transactions in the real economy are concluded through the financial and banking system. This system is able to ensure the real economy growth by being capable of financing it (De la Torre et al., 2012). There is an interdependence between the financial and banking system and the real economy. Starting from this interdependence we have developed and quantified the financial and banking stability index (ISFB) which is the main subject of this paper.

Pursuant to the measures enforced post-crisis by the decision factors in the financial and banking systems, the credit institutions in Romania have consolidated their resistance to adverse shocks and registered significant progresses in cleaning up their balance sheets (The National Bank of Romania, Financial Stability Report, 2016).

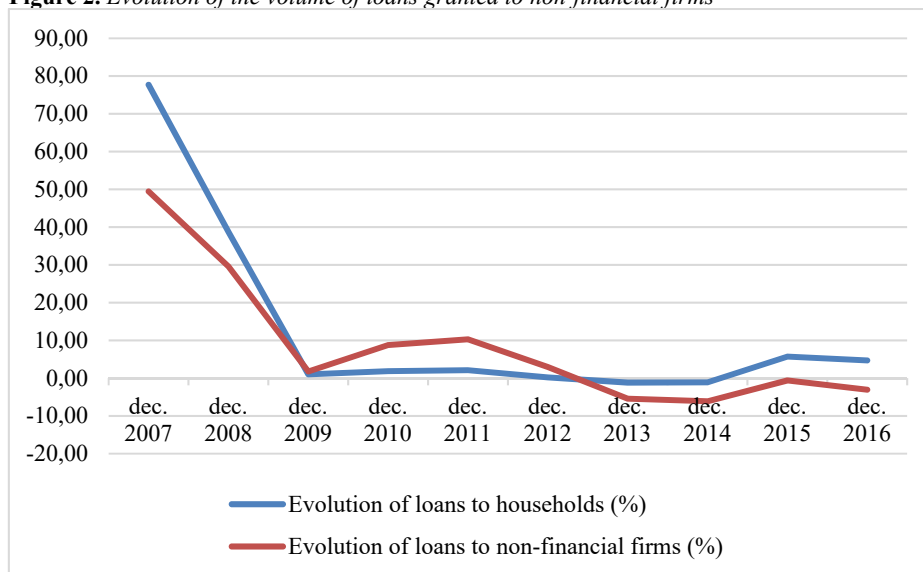
Real economy financing has flourished due to the loans granted in Romanian lei. As per The Financial Stability Report issued by The National Bank of Romania in April 2016, 67% of the loans granted to non-financial companies between January and December 2015 were in domestic currency. In the population segment, the new loans in lei represented 90% of the loans granted by banks. In 2016 there was a + 4% variation of the credit stock in national currency and of – 11% variation of the loans in foreign currency (European Commission, Country Report Romania 2017, p. 9).

The loans in foreign currency do not pose a flux problem anymore; their weighting diminished from 52.5% to 48.2% for the non-financial companies between December 2014 and December 2015 and from 60.7% to 51.3% for population (Figure 1 and Figure 2).

Nonetheless the weighting of loans granted in foreign currency, although on a descending trend, is still important.

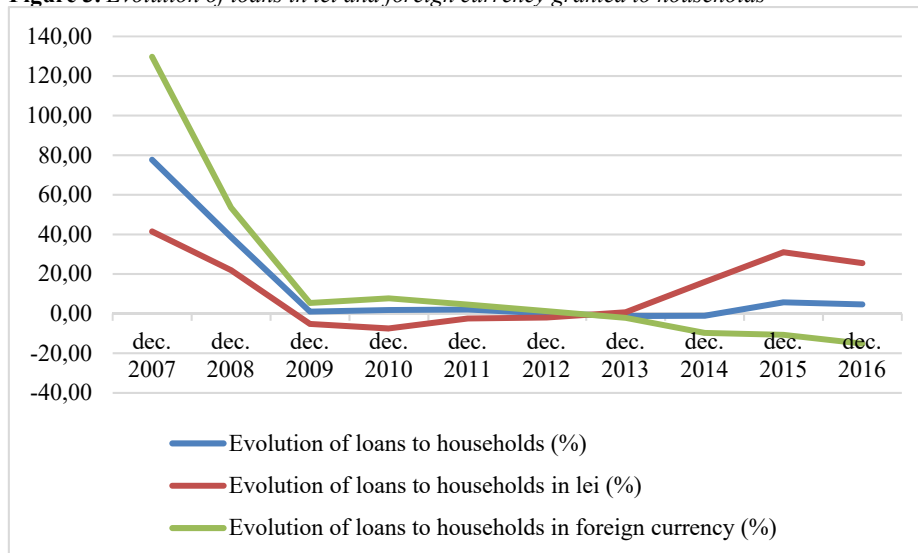
Figure 1. Evolution of the share of loans granted to households and non-financial firms

Source: Personal processing in Excel based on NBR data.

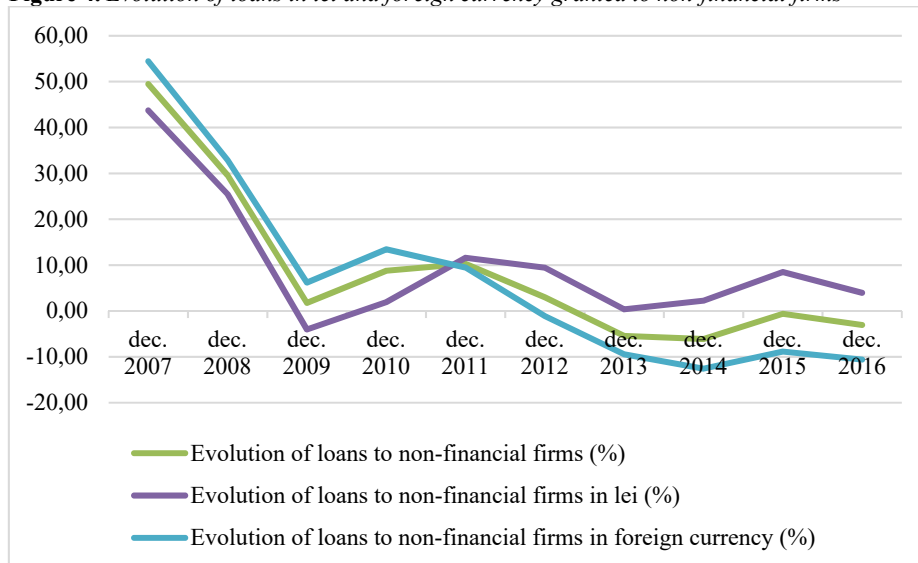
Figure 2. Evolution of the volume of loans granted to non-financial firms

Source: Personal processing in Excel based on NBR data.

In 2015 the banks granted loans to population and less to the companies and this situation was the same in 2016. As per Country Report Romania 2017 issued by European Commission, the loans given to companies have continued to diminish (-3.1% from year to year in December 2016). (Figure 3 and Figure 4).

Figure 3. Evolution of loans in lei and foreign currency granted to households

Source: Personal processing in Excel based on NBR data.

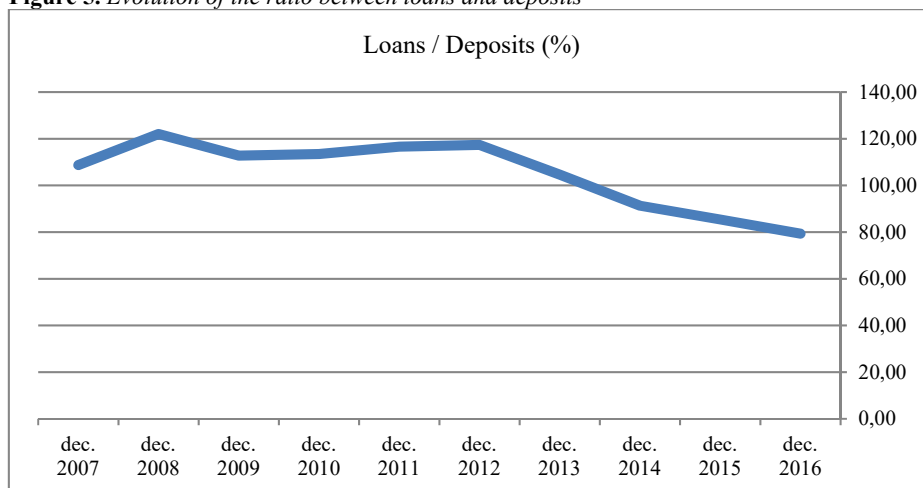
Figure 4. Evolution of loans in lei and foreign currency granted to non-financial firms

Source: Personal processing in Excel based on NBR data.

The loan demand remained low because the resident companies adjusted their balance sheets and preferred to reinvest their profits (Country Report Romania 2017 issued by European Commission). The financing strategies of the most important banks do not take into consideration a change of their business models in the next two years. They intend to maintain the existing structure in regard with the debtors and lending in lei. Financing from headquarters kept on diminishing in an orderly way thus minimizing the banking sector dependency on external sources.

According to The National Bank of Romania, the weighting between loans and deposits has been on a descending trend since 2012: it represented 79.34% in December 2016 compared to 117.3% in December 2012 or 122.03% in December 2008 (Figure 5). The level of this weighting has been forecasted by banks and does not pose risks from macro-prudential perspective.

Figure 5. Evolution of the ratio between loans and deposits



Source: Personal processing in Excel based on NBR data.

The fact that the financial and banking system has a very important role in real economy is undeniable; its smooth operation naturally determines economic growth and guarantees the financing of the best investment opportunities which lead to capital accrual and positively distributed risks. Prior to the 2008 international finance crisis, the international financial system had experienced an extremely accelerated development that proved unhealthy later on and created financial and macroeconomic imbalances. Thus, The National Committee for Financial Stability (CNSF) definitely imposes the need for financial supervision both from a micro- and macro-prudential point of view. On the same time the lack of an action framework was evident although it would have been necessary for forecasting possible imbalances in the nearest future.

Thus, the target of the macro-prudential measures is to ensure the optimal activity of the financial system and prevent its possible imbalances. In this way financial stability is achieved on the same time with the systemic risk reduction.

The National Committee for Financial Stability (CNSF) was also created out of the necessity of harmonizing the Romanian regulations with EU requirements in regard with financial crisis management. On June 1, 2008 “*The Memorandum of Understanding on Cooperation between the Financial Supervisory Authorities, Central Banks and Finance Ministries of the European Union on Cross-Border Financial Stability*” entered into force.

2.4. Correlation between real economy and non-performing loans

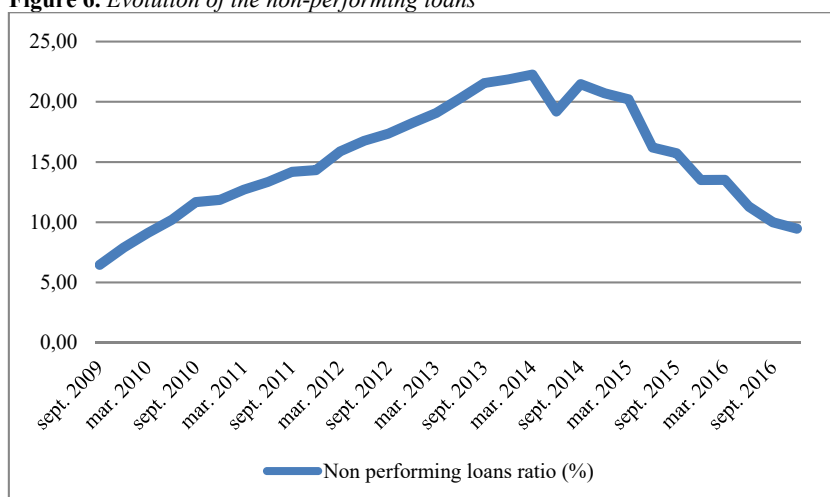
There is a direct connection between the factors that make a loan to become non-performing and those that trigger economic crises. This means the degradation of the economic climate is a result of diminished profit generating and financial activities and responsible with creating cash flows in economy (Nir, 2013).

If we have a look at the risk provisions calculation methodology and the fact that they are covered by the bank profit, we can conclude that a growing rate of non-performing loans will increase risk provisions and implicitly decrease the financial institution profit. In this way the bank is not willing anymore to take new risks by granting new loans. The lack of financing in the real economy generates financial blockages that directly affect the “healthy” companies too. These firms are, in turn, subjected to cash flow pressures and insolvency threats.

The economic climate deterioration due to payment blockages and underfinanced economy automatically leads to a decrease in the price of financial and real estate assets and securities. This degradation closes the vicious circle and has repercussions upon the commercial banks balance sheets. This time pressure is put on guarantees value leading implicitly to an increase in credit risk provisions and a decrease of economy financing potential.

In Romania in 2016 the non-performing loans volume diminished as a result of balance sheet relieve and impaired assets sale. As a result of the Resolution Plan for the Non-Performing Loans implemented by the National Bank of Romania in 2014, non-performing loans volume strongly decreased with approximately 12% - from the peak of 22.26% registered in February 2014 to 10% in October 2016 (Figure 6). As a supplementary measure to those enforced in 2014, in April 2016 the National Bank of Romania requested the banks completely cover the non-performing loan risk provisions (loans more than 180 days past due, non-guaranteed loans or loans for which there was a very low possibility to recover the guarantee) in order to facilitate the balance sheets relieve.

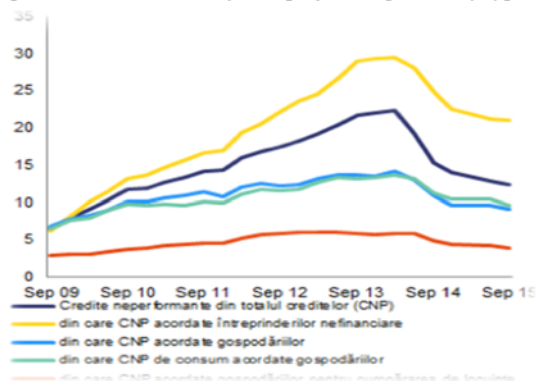
Figure 6. Evolution of the non-performing loans



Source: Personal processing in Excel based on NBR data.

In spite of this, banks are still affected by the companies and consumer credit risk exposure, these kind of loans being the most afflicted with repaying problems (Figure 7).

Figure 7. *The structure of non-performing loans by types of beneficiaries*



Source: European Commission, Country Report Romania 2017, p. 21.

From this perspective we consider the study of the non-performing loans rate to be very useful because this rate is an indicator of the degree to which the financial needs are covered and implicitly the volume of the companies profit and the level of macroeconomic growth. Thus, the economic forecasts for the near future are easier to create, the multiplier monetary and banking effect being inert within real economy. The ability of commercial banks to diminish the non-performing loans rate, demonstrated in the post-crisis period, has rapidly attracted the money supply increase and implicitly an increase of their capability of covering the real economy financing needs. Consequently, the basis for an ascending macroeconomic trend has been created.

From the analysis of the non-performing loans rate we can notice its gradual decrease due to a discard of the banks exposure to the defaulting clients corroborated with the proper risk management of the default claims not yet discarded.

3. Data series and research methodology

In this paper we intend to construe the Financial Stability Index (FSI) by using the VAR auto regressive method. The VAR type models are used for forecasting the interconnected time series systems and analyzing the innovations' dynamic impact upon the variable system. In ISF construing the financial and banking variables are pondered with the answer estimated by the VAR model, cumulated for two quarters, to the shock impulse of these financial and banking variables upon GDP. We can notice the GDP answer is stronger if staggered by two quarters.

Considering that the financial variables evolutions are often divergent and highly volatile, one of the approach the published literature proposes is the drawing up of an aggregated index of these variables – the Index of Financial Conditions (IFC) – capable of demonstrating the relationship between the financial and banking system and real economy, evaluating, from a historic point of view, how restrictive or relaxed the financial conditions are and offering, on the same time, information in regard with the economic activity

evolution on a short term. Thus Andreea Muraru (2015) draws up an Index of Financial Conditions (IFC) using three methodologies: weighted averages starting from the impulse-answer functions extracted from an auto regressive vector (VAR) estimated for the considered financial variables and Gross Domestic Product (GDP), main components analysis (ACP) and the dynamic common factors model (DFM).

In his paper “Financial Conditions Indexes: A Fresh Look after the Financial Crisis”, Jan Hatzius (Hatzius et al., 2010) drew up an innovative Index of Financial Conditions. He introduced in evaluations some quantitative and survey indicators that had not been used before and data series estimation techniques applicable for a long period of time.

In 2013 Ho and Lu (International Monetary Fund) drew up a financial conditions index for Poland. Through this index they created a correlation between the financial conditions in this country and its Gross Domestic Product (GDP) growth. In their work two methods were used: the factorial analysis and auto regressive factor. The paper conclusion is related to the short term prediction ability depending on the financial growth conditions for the GDP, growth owed to the importance of the financial sector in the economic evolution of Poland.

In a research conducted by Deutsche Bank economists (Hooper et al., 2014) a number of 38 variables are used for drawing up the Index of Financial Conditions (IFC). These variables are pondered with the oscillating level of their correlation coefficient with GDP evolution. In the paper a comparison is made between the Indexes of Financial Conditions calculated by distinct methods and on the basis of various data sets. The main conclusion of this research is the indicators have a similar behavior for a long time with no regard to the content and methodology used for their calculus.

Taking into account the subjects of the published literature, the objectives of this paper and the local economy specifics, we have chosen relevant variables from the national financial environment, foreign financial environments with major influence upon our national economic environment and local macroeconomic indicators. The selected variables are the following:

GDP (Gross Domestic Product) – It measures the monetary value of final goods and services produced in a country in a given period of time (a quarter or a year). It has been chosen as a base for the measurement of the macroeconomic results of a country.

ROBOR (Romanian Interbank Offer Rate) – The interest rate at which banks lend to each other in Romania. This indicator has been selected because of the influence it exerts upon the real economy financing needs. The interests levied by the banks are connected to this indicator.

REER (Real Effective Exchange Rate) – It has been selected because the exchange rate changes have an impact upon economic growth.

NPL (Bank Non Performing Loans to Total Gross Loans) – The non-performing loans rate in total loans granted. It has been chosen because of its influence on the banks lending policies and their willingness to take credit risks.

ROE (Financial Profitability Rate) – It has been selected because of the influence it exerts on assuming the decision of taking risks in connection with the financing the real economy

ROA (Economic Profitability Rate) – It has been chosen because the lending decision and its profitability level are very important in assuming the decision of financing the real economy.

LEV (Leverage Effect) – It has been chosen due to its capacity of reflecting an adequate capitalization of the banking system and implicitly its willingness to finance the real economy.

ASE (Bank Assets) – It has been selected due to its capacity of reflecting the real economy financing granted by the banking sector.

VIX – Index that describes the investors' unwillingness to take risks. It measures the prospected volatility on short term based on options having as a support the S & P 500 Index.

EURIBOR (Euro Interbank Offered Rate) – The EURIBOR rates are based on the interest rates at which a panel of European banks borrow funds from one another. It has been chosen because it influences the interest of the loans granted in EURO.

IPC (Index of Consumer Prices) – It has been selected because it examines the evolution of the weighted average of *prices* of a basket of *consumer* goods and services, such as transportation, food and medical care.

NET EXPORT (Net Export Volume) – It has been chosen because of its ability of illustrating the competitive capacity of real economy.

In this paper FSI has been estimated by the method of autoregressive vector and construed with a quarterly frequency. The period considered is between the first quarter of 2004 and the fourth quarter of 2016. In composing this index we have taken into consideration the quantification of the impact of indicators' variation upon GDP. In VAR estimate there are included 12 financial and banking variable indicators with quarterly frequency.

The reactions to impulse are presented in Figure 8. The GDP strongly answers after a two-quarter period, so we have opted for a ponderation of the variables with the cumulated answer to it. After extracting the cumulated answers to impulse, we have construed the financial stability index (FSI) according to the calculating formula:

$$FSI = 0,101 \times ROBOR - 0,180 \times REER - 0,089 \times NPL - 0,374 \times ROE + 0,141 \times ROA \\ - 0,055 \times LEVERAGE - 0,273 \times ASSETS + 0,100 \times SBUG - 0,900 \times VIX \\ + 0,164 \times EURIBOR + 0,246 \times IPC + 0,042 \times EXPNET$$

Where the attributed statistical weight is the cumulated answer of the two-quarter GDP to an impulse of a standard deviation within the variable (see Table 1).

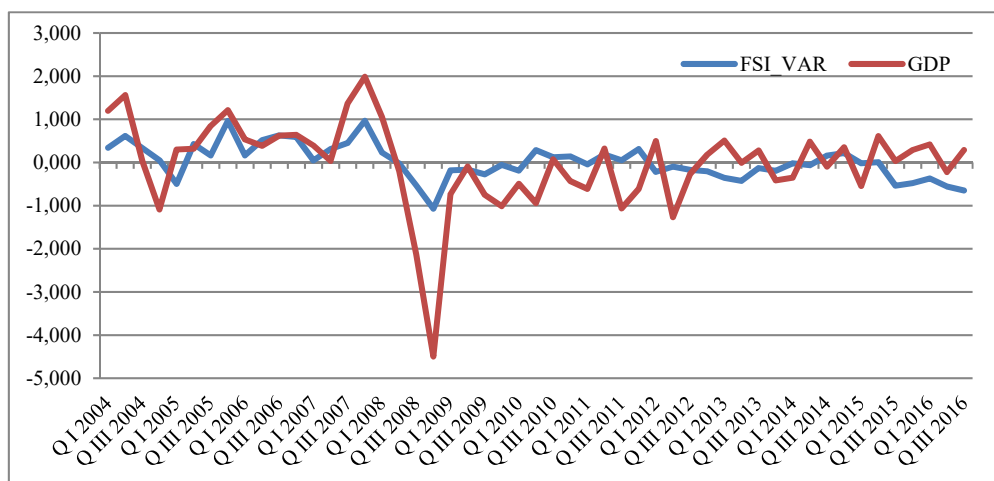
Table 1. *Second-quarter response coefficients*

Period	ROBOR	REER	NPL	ROE	ROA	LEV	ASS	DEFBUG	VIX	EURIBOR	IPC	EXPNET
1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)	(0.000000)
2	0.101253	-0.180125	-0.089080	-0.374141	0.141384	-0.055933	-0.273411	0.100650	-0.090011	0.164389	0.246859	0.042883
	(8.03680)	(5.87506)	(19.2035)	(117.448)	(46.6433)	(0.96987)	(1.54142)	(0.12395)	(0.11869)	(0.11012)	(0.11404)	(0.09102)
Cholesky Ordering: PIB ROBOR REER NPL ROE ROA LEV ASS DEFBUG VIX EURIBOR IPC EXPNET												
Standard Errors: Analytic												

Source: Personal processing in Eviews.

The values of the index calculated in this way satisfactory correlates with GDP growth rate. The highest correlation rate (0.58%) was noticed when the FSI was one quarter behind GDP. Thus, the effect is visible in economy with one quarter delay.

Figure 8. The FSI evolution estimated correlated with real GDP growth



Source: Personal processing in Excel.

Analyzing the evolution of FSI we can identify its correlation with the moments of economic crisis from the first quarter of 2008 - the first quarter of 2009, when the composite index recorded a sharp decline accentuated by the worsening financial conditions, especially the ROBOR growth and the budget deficit.

Period	FSI_VAR	GDP
1st Q 2008	0,229	1,9863
2nd Q 2008	-0,018	1,0524
3rd Q 2008	-0,531	-0,1982
4th Q 2008	-1,071	-2,1283
1st Q 2009	-0,183	-4,4965

Also, there are significant FSI decreases in the context of the Euro zone sovereign debt crisis, in 2011-2012:

Period	FSI_VAR	GDP
3rd Q 2011	0,053	0,3219
4th Q 2011	0,311	-1,0648
1st Q 2012	-0,218	-0,6137
2nd Q 2012	-0,097	0,4960
3rd Q 2012	-0,171	-1,2688
4th Q 2012	-0,203	-0,2686

FSI also captures the unfavorable financial environment during the political and military conflict in Ukraine in 2013-2014.

Period	FSI_VAR	GDP
4th Q 2013	-0,193	0,2779
1st Q 2014	-0,018	-0,4154
2nd Q 2014	-0,062	-0,3513
3rd Q 2014	0,158	0,4822

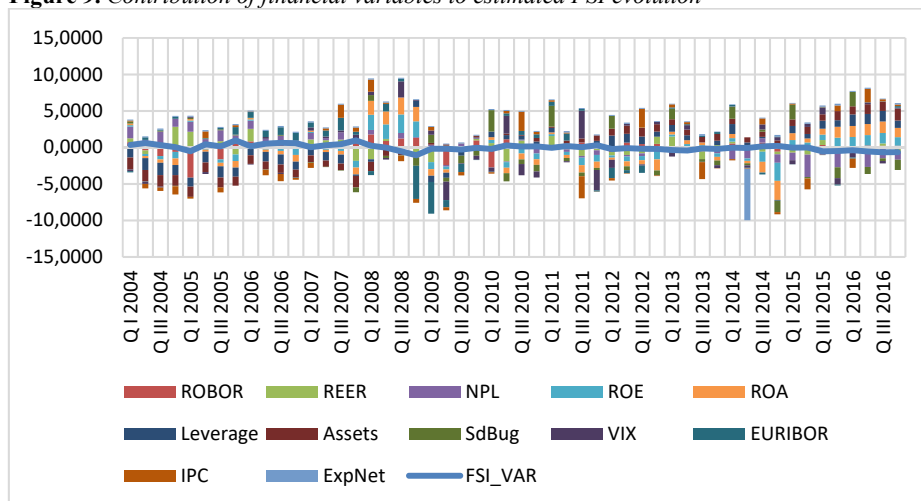
From the FSI analysis we notice few significant time frames within the studied financial environment and indicators. Thus, the period prior to the second quarter of 2008 registered a positive evolution of the existent financial conditions, a fact that explains the significant positive GDP evolution. This was followed by the worsening of these conditions starting with the external financial crisis in the third quarter of 2008.

In the period before the financial crisis the FSI had been notably influenced by the high financial intermediation level. This fact reflected in the ROA and ROE positive evolution within the banking system (a low weighting of the non-performing loans in total loans granted and an increase in the banking assets) accelerates the GDP increase. The worsening of the financial stability in 2008 is reflected by the VIX index and the decrease of EURIBOR interest. However, at the end of 2008, the Central European Bank increases the monetary policy rates in order to reduce the turbulences generated by the capital movements on the Romanian market under the external factors influence. This lead to FSI decrease.

In the period post-2009 the financial condition's have gone through ups and downs, even if the GDP evolution has been negative compared to the one in the pre-crisis period. Thus, the FSI quantified positive effects influence the real economy with a two-quarter delay in GDP evolution.

The general effects of EURIBOR decrease and implicitly of the real economy financing costs decrease have a positive influence upon the FSI and GDP evolution. Even though this is not found in banking assets increase (in absolute numbers), the relaunch of the real economy financing leads to an accelerated clean-up of commercial banks balance sheets from non-performing loans. This clean-up has also had as a result the decrease of the non-performing loans rate in the banking system starting from the second quarter of 2014 to till date.

Figure 9. Contribution of financial variables to estimated FSI evolution



Source: Personal processing in Excel.

In the components decomposition of FSI (see Figure 9) we observe a highly share of negative influence of the NPL increasing trend on FSI. If this indicator did not influence through its presence FSI until the fourth quarter of 2009, its share starts to increase

afterwards, the peak of its negative influence on FSI being largely manifested until the second quarter of 2014 when, in fact, commercial banks are starting large-scale operations of clearance of its balance sheets. As a result of this, the recovery of lending activity in particular can be noticed by the accelerated increase of the influence of the bank assets on the positive evolution of FSI due to the assumption of credit risks by the commercial banks and in fact the financing of the real economy. An improvement of the balance sheet situation of commercial banks is manifested by the increase of the ROE and ROA influence, even if this is not yet in a favorable evolution, on FSI. This is in strict accordance with the obvious trend of financial disintermediation due in particular to the withdrawal of the financing lines granted by the mother banks. According to the National Bank of Romania, financial intermediation decreased from 39% in 2008 to 29% in 2016.

In this context, according to the evolution of FSI, starting with the fourth quarter of 2014, we are witnessing another model of economic development based on a financing that comes mainly from internal resources and liquidities resulting from fiscal relaxation. Due to the risk aversion generated by credit portfolio degradation, the direct financing provided by commercial banks to the real economy was replaced by investments in state-backed assets - in particular in government securities. At the same time, the withdrawal of commercial banks' financing lines was replaced by the increase in deposits attracted from the domestic economic environment and from the population.

4. Conclusions

In summary, the activity of establishing a financial stability or financial stress composite index is useful from two points of view (Stancu et al., 2017):

1. It ensures a correlation between financial variables and real economy allowing the various historic “financial crises” episodes to be identified. The analysis of the correlation illustrates the contribution of each of the financial variables to the real economy evolution. In this context, the Financial Stability Index (FSI) reveals the impact of the economic and financial policies that aim at mitigating the financial crises.
2. It enables a short term prognosis about the real economy evolution. This is estimated by projecting, for the very next period of time, the real economy evolution (GDP_{t+1}) on the basis of GDP_t and FSI_t in the current period of time.

The purpose the FSI creation is to emphasize the status of the real economic environment with a specific focus on the Romanian economy and specificity of Romanian banking system. In this sense, I have selected 12 data series including financial sector indicator which reflects the status of the Romanian financial sector as well as international indexes to quantify the influence of the international environment toward the Romanian economy.

The utility of the FSI is highlighted especially during the economic crises periods when we may find a close correlation between FSI and GDP. Toward this correlation of the FSI with the real economic environment we note some aspects closely related to the transformation of the development model, with strict reference to the evolution of GDP and the financial context. The transformation of the pattern of economic growth is about diversifying of the funding sources. Compared to the period before the 4th quarter of

2014, we are witnessing a surplus of liquidity due to fiscal relaxation measures and an increase in cash availability available to the population. In the analysis of the ISF components, I would like to note some developments in real context. Thus, although the evolution of banking assets records oscillating developments in the period after the second quarter of 2014, this is due to the de-recognition of non-performing assets in the balance sheets of commercial banks. This fact led, especially since the first quarter of 2015, to an apparent decoupling of the financial stability index of GDP growth, especially since GDP growth has been strongly encouraged since 2015 also due to fiscal policy elements, with financial conditions moving on a second plane in influencing real economic developments.

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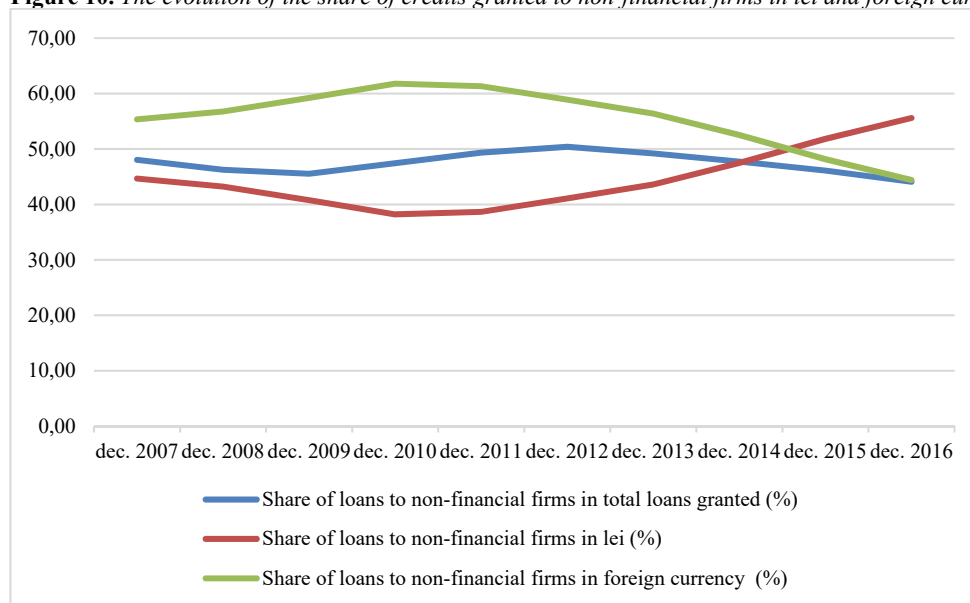
Annex

Table 2. *Structure of loans granted in Romania during 2007-2016*

Date	Evolution of loans to households (%)	Share of loans to households in total loans granted (%)	Evolution of loans to non-financial firms (%)	Share of loans to non-financial firms in total loans granted (%)	Evolution of loans to households in lei (%)	Share of loans to households in lei (%)	Evolution of loans to households in foreign currency (%)	Share of loans to households in foreign currency (%)	Evolution of loans to non-financial firms in lei (%)	Share of loans to non-financial firms in lei (%)	Evolution of loans to non-financial firms in foreign currency (%)	Share of loans to non-financial firms in foreign currency (%)
Dec. 2007	77,70	47,10	49,46	48,05	41,51	46,95	129,69	53,05	43,7	44,7	54,44	55,35
Dec. 2008	38,73	48,56	29,57	46,27	21,95	41,27	53,59	58,73	25,5	43,2	32,89	56,76
Dec. 2009	1,02	47,45	1,76	45,55	-5,20	38,73	5,40	61,27	-4,0	40,8	6,18	59,23
Dec. 2010	1,88	46,30	8,76	47,44	-7,46	35,18	7,78	64,82	1,9	38,2	13,45	61,79
Dec. 2011	2,11	44,59	10,28	49,34	-2,42	33,62	4,57	66,38	11,6	38,7	9,47	61,33
Dec. 2012	0,20	44,31	2,96	50,39	-1,91	32,91	1,26	67,09	9,4	41,1	-1,13	58,90
Dec. 2013	-1,16	45,22	-5,43	49,20	0,71	33,53	-2,08	66,47	0,3	43,6	-9,46	56,39
Dec. 2014	-1,09	46,22	-6,12	47,73	15,98	39,32	-9,70	60,68	2,2	47,5	-12,57	52,51
Dec. 2015	5,71	47,48	-0,60	46,11	31,05	48,75	-10,70	51,25	8,5	51,8	-8,84	48,16
Dec. 2016	4,71	49,02	-3,05	44,08	25,57	58,46	-15,13	41,54	4,0	55,6	-10,60	44,41

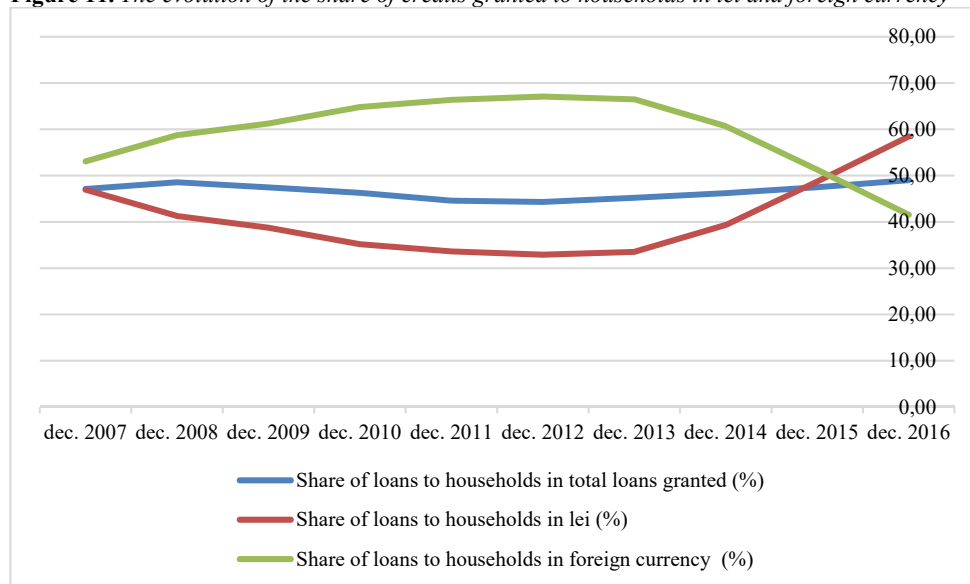
Source: Personal processing in Excel based on NBR data.

Figure 10. *The evolution of the share of credits granted to non-financial firms in lei and foreign currency*

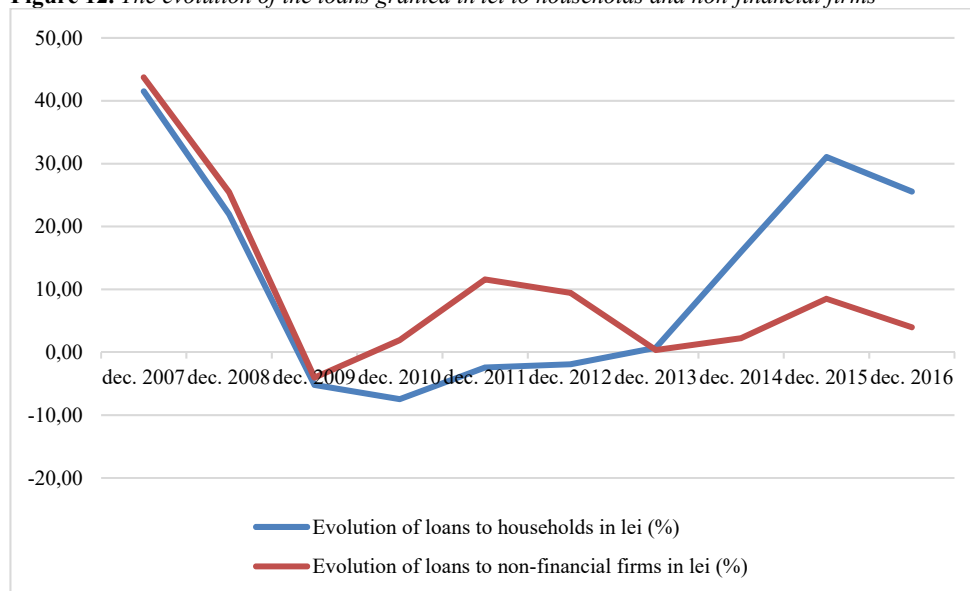


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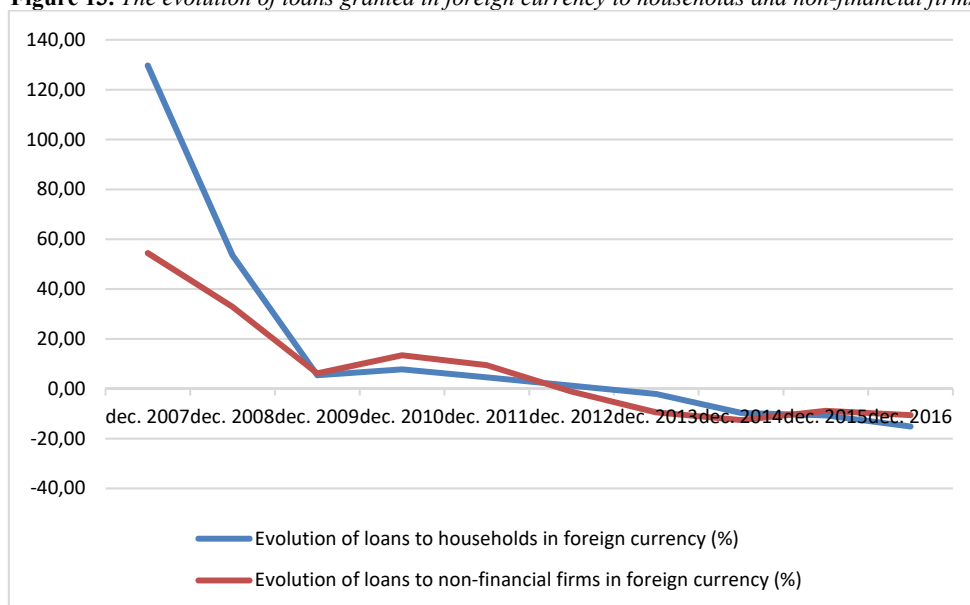
Figure 11. *The evolution of the share of credits granted to households in lei and foreign currency*



Source: Personal processing in Excel based on NBR data.

Figure 12. *The evolution of the loans granted in lei to households and non-financial firms*

Source: Personal processing in Excel based on NBR data.

Figure 13. *The evolution of loans granted in foreign currency to households and non-financial firms*

Source: Personal processing in Excel based on NBR data.