Periodical Part

Financial stability report for the Republic of North Macedonia in ... ; 2015

Provided in Cooperation with:
National Bank of the Republic of Macedonia, Skopje

Reference: Financial stability report for the Republic of North Macedonia in ... ; 2015 (2016).

Annex 3 Average financial stability index and monetary measures - the case of Macedonia

The average index of financial stability is the average of multiple indices for measuring financial stability, obtained by applying several methods. This unique index has proved to be more reliable for reflecting the position of the financial system, compared to many individual indexes. In the case of the Macedonian economy, the financial stability index has proved that in times of stress in the financial system, the banks' credit and deposit activity have the strongest impact on the index, with partial influence of the stock market index and the apartment price index. Testing the index using the SVAR model[1] showed that there is strong mutual, immediate relationship between the financial stability index and the monetary policy.

The financial stability index is an attempt to synthesize the complexity of the financial system through a variable. Its value is calculated as the arithmetic average of several indices obtained by using several methods: portfolio method[2], modified portfolio method (breakdown of a variance), modified portfolio method (signals), modified portfolio method (simulation), method of principal components, VaR- Value at Risk method. Although the method is simple, yet its use brings many positive effects: it successfully identifies periods of financial stress, has the lowest standard deviation of all other indices and proves that the models that, despite the usual macroeconomic variables include the financial stability index have better power at predicting GDP.

This is how the movement of average financial stability index shows the level of financial stability in an economy, so its increase implies a state of stress (instability), whereas its decrease indicates a state of stability.

Determination of indices included in the average financial stability index uses quarterly data for the 2005-2015 period, that include multiple variables from the banking system that reflect all systemic risk segments:

- Banking indicators: credit risk: (household loans/GDP, loans to non-financial entities/GDP); liquidity risk (loan/deposit, deposits from non-financial entities), currency risk (foreign currency deposits/total deposits), interest rate risk (interest rates on long-term Denar households loans, interest rates on long-term Denar loans to non-financial entities, denar interest rate spread between new loans and deposits) and

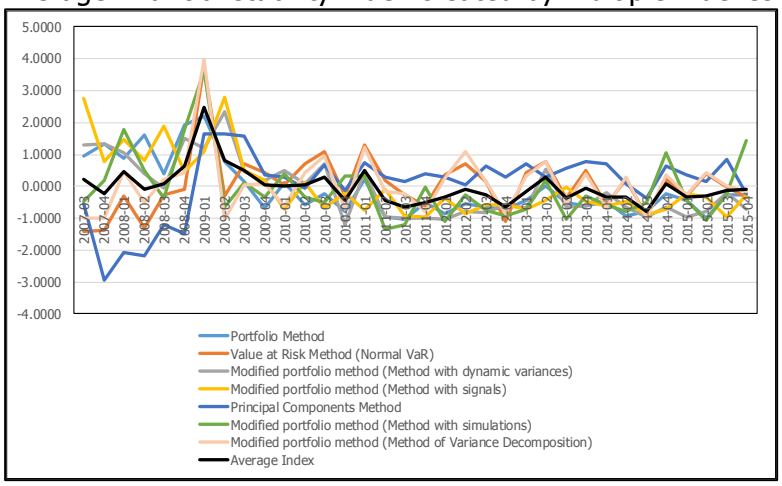
- Non-banking indicators: real estate price index, MBI10 and payment balance (account) deficit/GDP.

[1] SVAR (Structural Vector AutoRegressive)
[2] Similar to Holo study (2012).

Results for the financial stability index

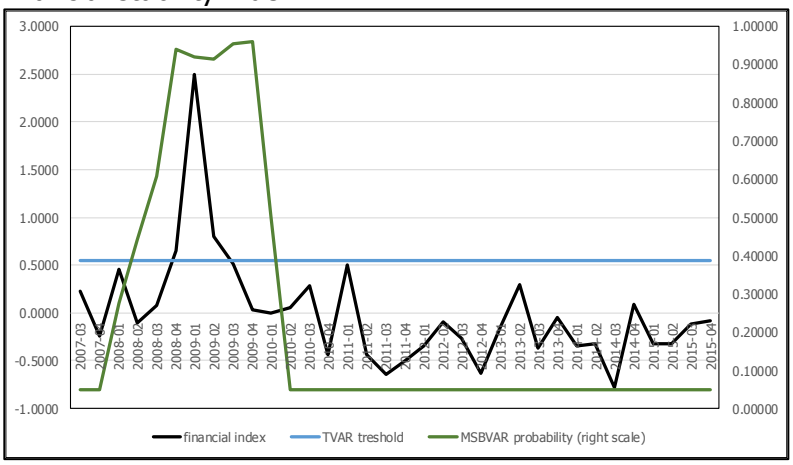
The financial stability index shows that the effect of the global financial crisis on the Republic of Macedonia was felt in the period from the third quarter of 2008 to the third quarter of 2009. In addition, six of eight indices to measure financial stability were at their zenith in the same time period (2009/1), and two indices in 2009/2. Data for the end of 2015 show that the financial system is in the state of stability.

Chart 1
Average financial stability index created by multiple indexes



When analyzing the indices, one must consider that that increase in the index does not always imply a start of crisis. A major challenge is to determine the real increase in the index, i.e. the critical index level, over which the growth really implies crisis.

Chart 2
Tools for distinguishing the movement of the average financial stability index



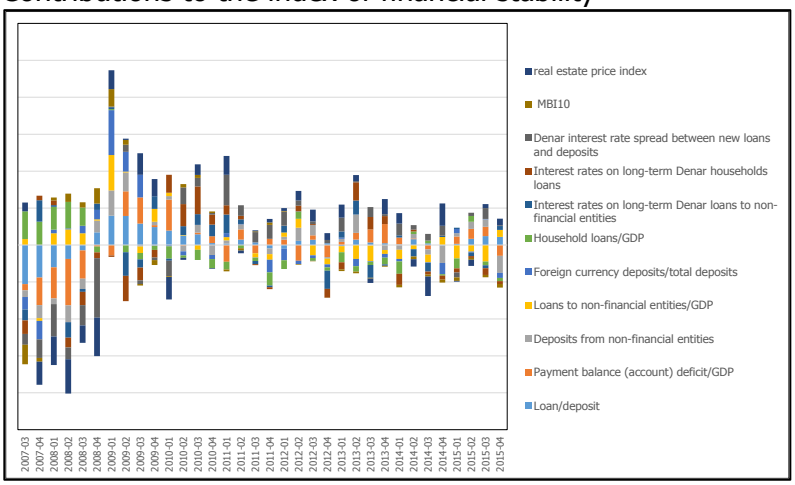
The answer to this question can be facilitated with additional parameters: using thresholds obtained when assessing the TVAR models[3], which would divide the field of index movement into two parts (stability / stress) or by using probability, derived from the evaluation of the MSBVAR models[4], which enable understand the certainty of the occurrence of the crisis.

[3] TVAR (Threshold Vector AutoRegressive)
[4] MSBVAR (Markov Switching Bayesian Vector AutoRegressive)

Contribution to the movement of the financial stability index

Analyzing the results of the average index of financial stability, it could be noted that the credit and deposit activity of banks are the main drivers of the index.

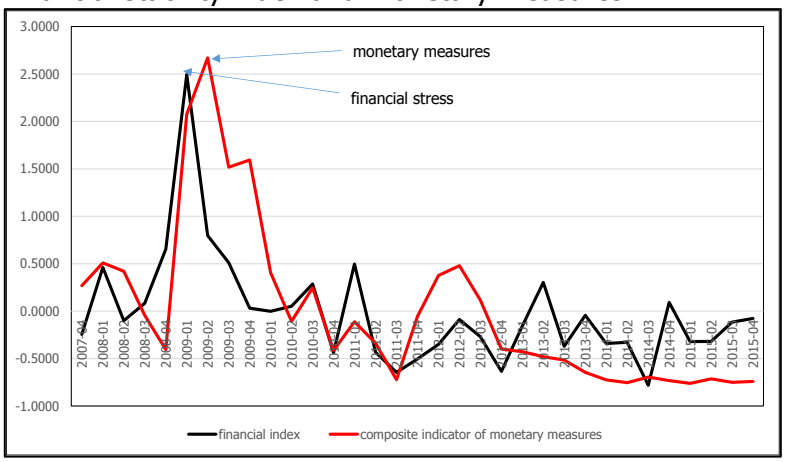
Chart 3
Contributions to the index of financial stability



These findings are logical given the fact that the financial system of the Republic Macedonia is still small and bank centric. During the global financial crisis, the stock index and the apartment price index tend to increase stress.

The analysis of the relationship between the cycle of the financial system and monetary policy uses the average financial stability index, and the so-called average composite indicator of monetary measures[5]. The following chart shows that the measures of the National Bank correspond to the beginning of the period of stress in the financial system. Furthermore, the SVAR model helped to examine the relationships between the financial index and monetary measures and vice versa. Using the SVAR model for testing the relationships helped to identify the strong mutual, immediate relation between the financial stability index and the monetary policy of the National Bank. Also, the SVAR model showed that the impact of the financial stability index on the monetary policy is stronger than the impact of the monetary policy on the financial stability index.

Chart 4
Financial stability index and monetary measures



[5] The structure of average composite indicator of monetary measures includes the following monetary policy instruments: amount of CB bills, interest rate on CB bills and reserve requirement rate. The increase in monetary index implies restrictive changes in monetary policy.