RESEARCH NEWSLETTER AT THE BANK OF ALBANIA

Contents

The 28th issue of the publication "Research Newsletter at the Bank of Albania" reflects on some of the recently completed and in process research papers, as well as other publications and the main research activities carried out by Bank of Albania's economists during the 1st half of 2022.

I. RESEARCH PAPERS

1.1 RECENTLY CONCLUDED RESEARCH PAPERS

Scientific research activities at the Bank of Albania during this period were oriented towards empirical research and analyzes with a focus on topics related to digital currencies, monetary policy, financial stability, demographic developments, household financial culture, etc. Summaries are presented below.

"The Albanian Household Wealth Survey: Results from the First Wave", *Elona Dushku, Ola Çami, Research Department, Bank of Albania.*

The "Albanian Household Wealth Survey" (AHWS), conducted by the Bank of Albania, aimed at collecting data from the individual balance sheets of Albanian households, enabling the understanding of different aspects of their behavior in terms of household assets and liabilities, saving, investment and consumption. The survey was presented to a total of 2,496 households, of which 91% (or 2,261 households) completed the questionnaire, while the rest, less than 10%, were not found at home or refused to participate. The data showed that real assets, and particularly the main residence of the household, are the main components of household wealth, while financial assets (deposits, saving accounts, pension funds, securities) constitute about 10% of total household wealth. On the other hand, less than 1/3 of households have a financial obligation (consumer loans, mortgage loans, credit card debt, overdrafts, debt to relatives and friends, financial lease contract, etc.). In terms of income, there are significant differences between the lowest and highest income levels. Consumption expenses account for an average of 67% of the total income of Albanian households, while savings, on average, account for 33% of income. The distribution based on the socio-demographic characteristics of households and of the

reference person, indicate a high level of heterogeneity among households.

"Demand and Supply in the Banking Loan Market: Has Albania Experienced a Crisis (disequilibrium) Episode after the Global Financial Crisis?", *Gerti Shijaku, Research Department, Bank of Albania.*

This paper presents an empirical investigation of the hypothesis of the existence of a possible credit crunch (rationing) episode in the credit market in Albania, focusing particularly in the period after the global financial crisis. Using macroeconomic and banking sector data over this period, we disentangle credit demand and credit supply by estimating a dynamic disequilibrium model of the Albanian credit market with a standard VAR approach. The paper analyzes the market of bank credit to firms (and to households). Results are cross-checked by the insights of the bank lending surveys. The main results do not support a relatively strong credit market disequilibrium in Albania that would be related particularly with credit crunch episodes. Results, however, do provide evidence that support credit rationing hypothesis in case of both firms and households. Such episodes are found to take place from the demand-side and the supply-side. Similarly, these episodes are found to last longer in the case of firms. At the same time, the magnitude of credit rationing is also found to be bigger in the case of firms.

1.2. RESEARCH PAPERS IN PROGRESS

"Central Bank Balance Sheet and Inflation in a Small Open Euroized Economy with Constrained Capital Markets", *Gent Sejko, Governor and Altin Tanku, Research Department, Bank of Albania.*

Up to last fall, the Bank of Albania (BoA), like other central banks, was mainly concerned with low inflation and insufficient inflation expectations. Despite BoA's prolonged expansionary monetary policy and the fact that the policy rate was close to its zero lower bound, inflation remained below its long-term target. BoA found limited room and motivation to apply balance sheet policies. The implementation of this newly created instrument, was constrained by shallow underdeveloped financial and capital markets, and lack of tradable securities (see Sejko 2022). BoA efforts to achieve the inflation objective and to support the economic activity included a series of policy actions to provide "additional liquidity providing operations". Despite leading to a small increase in total BoA liabilities, these policies have induced a change in the composition/structure of BoA's balance sheet. Such changes have also been reflected in the composition of monetary base in favor of currency outside banks (COB). This research aims to investigate whether changes in the structure of BoA's balance sheet provide for additional monetary shocks with direct effects on inflation and economic activity. The main hypothesis is that changes in the structure of BoA's balance sheet in favor of non-bank components (and equivalently changes of the monetary base in favor of COB), provide additional money supply shock beyond and above traditional expansionary effects of the policy rate. If this were the case, identification of these balance sheet structural shocks, have a direct and positive effect on inflation. To test the hypothesis we estimate a small structural VAR model with policy and non-policy variables. The identification of structural shocks in our VAR, is guided by two important insights: first, particular characteristics of the DGP (data

generating process) might and should be considered in the structure of the model; second, we rely heavily on our knowledge of the decision making process as described in the BoA's Annual and Monetary Policy Reports.

"Global and Local Drivers of Credit to Economy"*, Bledar Hoda, Research Department, Bank of Albania.*

Credit to economy is a key channel of financial intermediation that promotes economic development. The growth rate of credit stock is also a major factor for the dynamics of business and financial cycles. Current literature focuses on the role of credit intermediated by financial system on the dynamics of the economy by distinguishing two streams. One part of the literature studies the impact of credit growth and its structure in financial stability, business cycles and economic growth. The other part of the literature elaborates on the key drivers of credit to economy. More recently, this stream focuses on the global or regional drivers and on the impact of policies at national level. In the last two decades, credit growth for both categories, nonfinancial corporations and residents, in Albania seems to correlate well with credit growth across economies in the central and southeastern economies and with that of Euro area. The aim of this study is to assess two sets of determinants of credit to economy, global or regional factors and local ones for both, credit for nonfinancial corporations and for residents. Determining the global or regional drivers of credit to economy is a critical step towards identifying and assessing how effective individual policies are. Potentially, results may highlight the impact of uncertainty, or monetary policy in US or Euro area. The exercise opens the way for assessing

not only the impact of monetary policy at national level in smoothing business cycles but also the effectiveness of individual macro prudential tolls available to national authorities, mostly central banks.

"Assessment of the Financial Vulnerability of Albanian Households"*, Elona Dushku, Research Department, Bank of Albania.*

The recent global financial crisis and the pandemic crisis caused by Covid-19 have once again highlighted how vulnerable households are, not only as a result of rising debt, but also as a result of other factors resulting from the low level of income and wealth, arrears in the payment of utility bills, difficulties in buying food or paying rent, lack of financial cushions, low level of financial culture, etc. The purpose of this paper is to assess the financial vulnerability of households in Albania based on the most recent data of the Albanian Household Wealth Survey, conducted by the Bank of Albania. Moreover, it is intended to analyze and evaluate the profiles of the most financially vulnerable households based on their different characteristics.

"A Metric Approach to Assess Sustainable Development in the Case of Albania"*, Gerti Shijaku, Research Department, Bank of Albania and Pierre Monnin, CEP.*

Sustainable development and its assessment have increasingly played a key background role in government policymaking across the world. Generally, sustainable development is defined as the coordination of economic, environmental, and social development in order to balance intra-generational welfare and maximize inter-generational overall welfare. For this reason this paper introduces an adequate continuous and

accepted metric approach to assess such developments from the perspective of integrating economic, environmental, and social dimensions that would then be used to better monitor the status of sustainability and help to strengthen the public and academic understanding on such issues. The methodology includes 12 indicators, weighted according to the entropy method, which are independently related to the three types of dimensions referring to such developments.

"Bank of Albania and its Approach to Climate Change in Albania", *Margerita Topalli Research Department, Bank of Albania and Pierre Monnin, CEP.*

The impact of climate change is already present almost everywhere. According to the World Bank, Albania turns out to be the country most affected by climate change in the Western Balkans. With the increase of these risks, many businesses and households will be increasingly affected. Financial institutions play a central role in the context of climate change, so green finance is beginning to occupy an increasingly large weight in the agenda of Bank of Albania (BoA). This paper has exactly this goal, to better understand and evaluate the economic and financial consequences of climate change, as well as to serve as a roadmap for the design of a strategy by BoA against these risks.

"Does Money Matter for Predicting Prices in Albania", *Ilir Vika, Research Department, Bank of Albania.*

Up to the middle of 2000s, broad money played an important role in the central bank's monetary policy strategies. Thereafter, there was a general perception of money losing its appeal as an informative variable and the central bank gradually shifted from a monetary targeting regime to a full-fledged inflation targeting framework in the early 2015. Nevertheless, economic developments in recent years have instigated the Bank of Albania to broaden the scope of attention in its monetary policy medium term strategy reports since 2019 by stimulating empirical studies to re-assess the information content of money in predicting inflation in Albania. As movements in other macroeconomic indicators may affect the link between money and prices in the near to medium term, we use nonparametric statistical methods, such as recurrent neural networks, to account for both nonlinearity and a time-varying relationship. The forecast ability is evaluated in a pseudo out-of-sample exercise for horizons varying from three months to three years ahead.

"Analysis of the Performance of the Albanian Banking Sector using a ROE Breakdown Method (2010 - 2020)", *Fiqiri Baholli, Research Department, Bank of Albania.*

In the literature, bank performance is considered its capacity to generate profit. Moreover, banks' profit is a first defense line in case of unforeseen losses. At the same time, like any other business, profitability is the ultimate goal that satisfies investors. This paper aims to study and analyze the performance of the Albanian banking sector by decomposing the measure of Return on Equity (ROE) during the decade 2010-2020. Analyzing banking data for the period 2010-2020 showed that banks are characterized by a positive Return on Equity, supported by an increase in asset activity, bringing about a higher effective use of them. However, during the last

decade also, credit risk has played an important role in determining bank profits, restructuring actions and the erasure of non-performing loans, driving the diversification of the bank's asset portfolio.

"Employing Big Data Tools to Inquire into Albania's Residential Housing Price Trends", *Orion Garo, Research Department, Bank of Albania.*

In the absence of a market price for real estate, this project presents a new methodology of providing data from other sources of information. The objective of this study is the use of "web scrapping" tools for collecting data from online websites, as well as generating indexes to evaluate its dynamics. Web scrapping is the process of using computer tools to extract data from a web page. The application of this method in the case of Albania, by means of Python, was made by gathering information on published house prices and generating price time series, from 2017 onwards.

"Household Saving Behavior in Albania", *Ola Çami, Research Department, Bank of Albania.*

Understanding more about saving dynamics has always sparked interest among researchers mostly at the micro level, but nonetheless at the macro level because the role that saving has in a country's development is fundamental and also multidimensional. This paper aims to analyze the saving behavior of Albanian households using data from the Albanian Household Wealth Survey (AHWS) for 2019 and 2021. More specifically, the study raises the questions: "who saves?" and "why they save?" focusing on household heterogeneity in terms of economic, social and demographic indicators.

1.3. RESEARCH ARTICLES

"Monetary, Fiscal and Structural Drivers of Inflation in Albania", *Meri Papavangjeli, Research Department, Bank of Albania.*

In the current context of high uncertainty in the global economy and global commodity pricee rises, this article investigates empirically the driving forces of inflation in Albania through a structural approach, focusing especially on the developments in the food sector in general and cereals in particular, during the period from 2000 to the first quarter of 2022. Considering four measures of inflation such as: cereals, food, non-food, and headline inflation, it analyses the effects of domestic and external factors on inflation, including demand-side, supply-side and structural factors, using a vector error correction model (VECM), which allows to capture the short-term and long-term effects. An important contribution of the article is the consideration of the fiscal sector in examining inflation dynamics, which has been neglected so far in the current studies on this topic. The empirical results show that disequilibria in the long-term relative cereal prices in Albania relative to the global prices, sustain inflation in the country; in the short run, inflation is driven by structural factors (particularly agricultural output gap and imported inflation), as well as demand-side factors (especially money growth and public sector borrowing).

"Evidence on Financial Literacy and Financial Inclusion in Albania", Elona Dushku, Research Department, Bank of Albania.

This article presents evidence on the financial literacy and financial inclusion in Albania based on the "Financial Literacy Survey" of Bank of Albania conducted during 2019. The data show that the level of financial literacy of Albanians is low compared with the average of individuals in the world. Individuals in Albania have only 53% (11.2 out of 21) of the total financial knowledge, behaviors and attitudes, which is reflected in a low level of financial inclusion. Only 54% of Albanians are aware at at least five financial products, compared to 83% of individuals globally. Also, the use of payment products is almost 2.5 times lower than the global level. The data display a low score of financial well-being of individuals in Albania, which reflect their uncertainty about finances and planning for the future.

https://www.suerf.org/suer-policy-brief/44247/evidence-on-financial-literacy-and-financial-inclusion-in-albania

"Climate risk management and banks in Albania" Lindita Molishti, Research Department, Bank of Albania.

Physical materialisations of climate changes are becoming increasingly visible across the globe, as well as their social and economic impacts. A study of GFDRR Disaster risk finance diagnostic-albania concluded that "Albania is the most vulnerable country in Europe prone to various risks"

The assessment of effects from climate-related risks to the economy is a very complex exercise. Exposure to such risks affects all sources and capitals of the economy, including human and financial capital, as well as natural capital.

In the meantime, any delay by the banking sector for actions to tackle climate risks would have irreparable costs. In order to be helpful for the banks this paper try to summary and describe analytically the situation of climate-related risks in Albania and the degree of the potential exposure of the Albanian economy to climate change. It is necessary for the Albanian banking system to follow the pace of change that is being sought, first by setting up the structure for recognizing and integrating climate risks in their risk management processes in order to protect banks' portfolios and, secondly, by reformulate lending strategies and orient capital and expertise towards green lending.

The adaptation of the principles of social responsibility and environmental sustainability (ESMR), which many global financial institutions (IFC, WB, etc.) have adopted, and the inclusion of climate transparency, are of triple importance for the banking system: first, it protects banks from reputational risk as well as protects their portfolios from climate risks; second, this alignment with the principles of climate responsibility makes the banks of the banking system acceptable to channel the global financing raised for climate; and third, it enables banks to recognize opportunities and innovations and co-finance profitable investments with an impact on the green and sustainable growth of the Albanian economy.

1.4. RESEARCH PAPERS FROM OTHER CENTRAL BANKS

"How Did It Happen?: The Great Inflation of the 1970s and Lessons for Today" by *Edward Nelson, Federal Reserve.*

The pickup in the U.S. inflation rate to its highest rates in forty years has led to renewed attention being given to the Great Inflation of the 1970s. This paper asks with regard to the Great Inflation: "How did it happen?" The answer offered is the fact that, in both the United Kingdom and the United States, monetary policy and other policy instruments were guided by a faulty doctrine—a nonmonetary view of inflation that perceived the concerted restraint of aggregate demand as both ineffective and unnecessary for inflation control. In the paper's analysis, the difference in the economic policy doctrine in the 1970s from that prevailing in more recent decades is represented algebraically, with this representation backed up by documentation of policymakers' views. A key conclusion implied by the analysis is that the fact that a nonmonetary perspective on inflation is no longer prevalent in policy circles provides grounds for believing that monetary policy in the modern era is well positioned to prevent the recurrence of entrenched high inflation rates of the kind seen in the 1970s.

https://www.federalreserve.gov/econres/feds/the-great-inflation-of-the-1970s-and-lessons-for-today.htm

"The Real Effects of FinTech Lending on SMEs: Evidence from Loan Applications" by *Afonso Eça, Miguel A. Ferreira, Melissa Porras Prado, A. Emanuele Rizzo, European Central Bank.*

Authors show that FinTech lending affects credit markets and real economic activity using a unique data set of a Peer-to-Business platform for which we have the universe of loan applications. They find that FinTech serves high quality and creditworthy small businesses who already have access to bank credit. Firms use FinTech to obtain long-term unsecured loans and reduce their exposure to banks with less liquid assets, stable funds, and capital. Authors find that access to FinTech spurs firm growth, employment and investment relative to firms that get their loan application rejected. In addition, firms with access to FinTech increase leverage and substitute long-term bank debt with FinTech debt. Findings suggest that FinTech allows firms to preserve financial flexibility, reduce their bank dependence and exposure to banking shocks.

https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp2639~849f8a2608.en.pdf?9d1ffb5be78f671bb63eb8c889ee28c2

"Financial Openness and Inequality" by *Stefan Avdjiev, Tsvetana Spasova, BIS.*

Authors conduct a comprehensive empirical investigation of the link between inequality and financial openness. They document that the relationship varies considerably not only over time, but also across the main components of total external liabilities, which have been largely overlooked by the existing literature. In emerging market economies (EMEs), an increase in a country's external liabilities is associated with an initial rise and a subsequent fall in inequality. This appears to be driven by the fact that the channels through which financial openness increases inequality tend to be

active immediately, while the inequality-decreasing channels tend to operate with a lag. The link between financial openness and inequality tends to be substantially weaker in advanced economies than in EMEs.

https://www.bis.org/publ/work1010.pdf

"Retail CBDC and U.S. Monetary Policy Implementation: A Stylized Balance Sheet Analysis" *by Matthew Malloy, Francis Martinez, Mary-Frances Styczynski, Alex Thorp, Federal Reserve.*

This paper discusses how a Federal Reserve issued retail central bank digital currency (CBDC) could affect U.S. monetary policy implementation. Using a stylized balance sheet analysis, the authors analyze the effect a retail CBDC could have on the balance sheets of the Federal Reserve, commercial banks, and U.S. households. Authors consider how these balance sheet changes could affect monetary policy implementation for the Federal Reserve. They illustrate that the potential effects on monetary policy implementation from a retail CBDC are highly dependent on the initial conditions of the Federal Reserve's balance sheet. Moreover, the analysis demonstrates how the Federal Reserve may use its existing tools to manage the effects of a retail CBDC on monetary policy implementation.

https://www.federalreserve.gov/econres/feds/retail-cbdc-and-us-monetary-policy-implementation.htm

II. RESEARCH ACTIVITIES

Workshop on the topic ***"Strengthening research capacities in central banks".***

On May 9-12, 2022, the Swiss State Secretariat for Economic Affairs (SECO), within the framework of the BCC (Bilateral Assistance and Capacity Building for Central Banks) programme, held in Tirana the activity on the topic "Strengthening research capacities in central banks", with the participation of other partner central banks of the BCC program such as: Azerbaijan, Bosnia-Herzegovina, Colombia, Morocco, Peru, Tunisia and Ukraine.

The activity, organized in the form of a round table, was aimed at highlighting the role of scientific research in central banks, as a necessity to increase the analytical, investigative and decision-making process of central banks. Moreover, ideas were conveyed and experiences were exchanged regarding the role of scientific research, challenges and issues that concern it, its empowerment and cooperation inside and outside central banks.

More specifically, central bank representatives discussed on:

- *The importance of research for the central bank and how research can be better organized within the central bank.*
- *How to choose research topics, what research should cover and how research work is evaluated.*
- *How to convey research, as a public good for society and academia.*

- *New challenges for central banks and research related to central bank digital currency, inflation, climate change, green finance, etc.*

2.1 FRIDAY SEMINARS

Seminar on the topic **"Macro econometric Albanian model (MEAM): an update of the main equations and model elasticities",** *Lorena Skufi, Eglent Kika, Enian Çela, Monetary Policy Department, Bank of Albania, January 2022.*

The seminar provided an update of the Macro Econometric Albanian Model (MEAM) model, a semi-structural model consistent with neo-classical growth models for small-open economies. The elasticities and the properties of the MEAM are demonstrated through shock analysis in terms of single equations and systems of equations.

Seminar on the topic **"In Search of Credit Crunch (Rationing) Periods in Albania: A Disequilibrium Approach",** *Gerti Shijaku Research Department, Bank of Albania, March 2022.*

This seminar presents an empirical investigation of the hypothesis of a credit crunch (rationing) of the Albanian credit market after global financial crisis. Using data over this period of macroeconomic and banking sector instability, we estimate a dynamic disequilibrium model of the Albanian credit market with a standard VAR approach.

2.2 TECHNICAL SEMINARS

Seminar on the topic "Employing Big Data Tools to Inquire into Albania's Residential Housing Price Trends: An Application of Python and MS Excel's Power Toolset", Orion Garo, Research Department, June 2022.

The purpose of this seminar was the presentation of the "web scrapping" method based on the Python program, as well as the generation of data on the housing prices in Tirana and in other areas in Albania.

III.   LINKS OF OTHER INSTITUTIONS:

Banca d'Italia
(http://www.bancaditalia.it/studiricerche)

Bank of Canada
http://www.bankofcanada.ca/research/

Banco de Espana
(http://www.bde.es/informes/be/docs/ docse.htm)

Bank of England
(http://www.bankofengland.co.uk/ publications/workingpapers/index.htm)

Bank of Finland
(http://www.bof.fi/en/julkaisut/bofit_ julkaisut/index.htm)

Bank of Greece
(http://eng.bankofgreece.gr/en/ publications/research.asp)

BIS Central Bank Research Hub
(http://www.bis.org/cbhub/index.htm

Czech National Bank
(http://www.cnb.cz/en/research/])

Deutsche Bundesbank
*(http://www.bundesbank.de/vfz/vfz_
diskussionspapiere_2009.en.php)*

European Central Bank
*(http://www.ecb.int/home/html/researcher.
en.html)*

Federal Reserve
*(http://www.federalreserve.gov/
econresdata/default.htm)*

International Journal of Central Banking
(http://www.ijcb.org/)

National Bureau of Economic Research
(http://www.nber.org/)

International Monetary Fund
(http://www.imf.org/external/pubind.htm)

Oesterreichische Nationalbank
*(http://www.oenb.at/en/presse_pub/
research/research.jsp)*