RESEARCH NEWSLETTER

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This newsletter presents a short summary of the Bank of Albania's research projects during 2019 H1. More concretely, it reflects the most recently concluded research papers, research work in progress, articles, and the main research activities organized mainly by Bank of Albania's economists in the course of this period.

In 2019 H1, scientific research at the Bank of Albania consisted of empirical studies and analyses on: banking sector behaviour; exchange rate volatility; monetary policy and electronic currencies. A short summary is presented below.

I. RESEARCH PAPERS

1.1. RECENTLY CONCLUDED RESEARCH PAPERS

"What Drives the Real Lek-Euro Exchange Rate Fluctuations? A cointegrated SVAR approach for identification of economic shocks?" by Altin Tanku and Ilir Vika, Research Department.

This study aims to assess the exchange rate sensitivity to real and monetary shocks in Albania after the transition. In particular, the analysis attempts to reveal whether the exchange rate is a source of instability or serves as a shock absorber that stabilizes deviations from the equilibrium. We rely on a cointegration structural vector autoregression method with long-run restrictions and follow Weber's (1997) theoretical framework with five variables, namely employment, output, real exchange rate, money and prices. The first two variables aim at identifying the supply shocks; the third is identified as a real demand shock; whereas monetary indicators are intended to capture money demand and money supply effects. The results suggest that monetary shocks account for around 28 per cent of the real exchange rate fluctuations in Albania. Meanwhile, their effects are found to be negligible in the last couple of years, in which real exchange rate appreciation could mostly stem from real economic factors. Since these factors are 'permanent' by definition, the recent gaining of lek seems generally consistent with the main economic developments and around a 'normal' value. Finally, our findings that real exchange rate movements in Albania are in large part explained by real economic fundamentals show favour to the adequacy of the actual free-floating exchange rate regime.

"The Impact of Housing Markets on the Risk-Taking Behavior of Banks: Evidence from CESEE Countries", by Elona Dushku (Research Department), Antje Hildebrandt (Oesterreichische Nationalbank) and Erjona Rebi (Monetary Policy Department).
The study empirically assesses the impact of housing market dynamics and housing market exposure on the stability of the banking sector in CESEE countries. Also, the study analyses whether there are differences in the behaviour of banks in CESEE-EU member states versus those in the Western Balkans. The results show that the exposure of banks to the housing market has a positive and significant impact on bank's stability in both groups of countries. As to the impact that house price dynamic has on bank stability the empirical results for both group of countries are different. The results obtained reflect the different stage of development of the real estate market, the banking system and the institutional development of countries under our analysis.

"Electronic Money and Financial Technology: An Update", by Bledar Hoda, Research Department.
The diversity of financial products enabled by Distributed Ledger Technology (DLT) or any cryptographic elements embedded in the products is named "crypto-active" by the standard-setting organizations like the Financial Stability Board (FSB). Crypto-active assets have the potential to compete, challenge or transform many of the existing financial products as well as to challenge the current regulatory framework. The scope of this paper is to get an update of the latest activities based on new financial technology. The paper sheds light on three key themes related to financial technology:

(i) the development of new FinTech technologies with a broad potential for the current financial and non-financial industry, (ii) the new trends regarding the possible issue of Central Bank Digital Currency (CBDC) and (iii) the current stance of international standard-setting organizations with respect to the required regulatory framework.

1.2. RESEARCH PAPERS IN PROGRESS

"Survey on the Finances and Consumption of Albanian Households", by Elona Dushku and Ola Çami, Research Department.
The economic developments of the last decade clearly showed that micro level data gathered for firms, households, banks, financial institutions, etc. create the opportunity to analyze in more detail various economic phenomena. This brought attention to enriching data at the micro level to build different risk profiles predominantly at the household level based on income levels, occupation, age groups, access to finance, real and financial wealth levels etc. The Bank of Albania, for the purpose of meeting the objective of price stability and financial stability, undertook for the first time the "Survey on the Finances and Consumption of Albanian Households", based on the questionnaire developed by the European Central Bank, tailored to the particularities of Albanian households. The survey was conducted by Instat during March-April 2019 and aimed at gathering information of 2,500 Albanian households regarding their real and financial assets, financial liabilities and investments as well as household expenses and income. The sampling of households across the territory was made randomly by Instat, based on

the principle of proportionality, to have a comprehensive representation of the whole population of Albanian households. The "Survey on the Finances and Consumption of Albanian Households" will not only serve to enrich the data at household level, but will also improve and deepen Bank of Albania's analyses on the behavior of Albanian households for the purposes of monetary policy and financial stability.

"Financial literacy in Albania: Survey results for measuring the level of financial literacy of the population, 2019", by Egnis Isaku, Kliti Ceca and Arlinda Koleniço, Research Department.
The Bank of Albania is going to assess for the third time, following 2011 and 2015, the level of financial literacy of the Albanian population. The survey "Financial Literacy in Albania" is designed according to the OECD/INFE guidelines and methodology and is expected to be conducted in cooperation with INSTAT during September-October 2019. Following the survey, a report is going to be prepared based on the data collected and a comparative analysis with previous surveys. The data obtained from this survey provide crucial information on identifying the issues that need attention and intervention through financial education projects.

"Forecasting the Albanian Short-Term Inflation through a Bayesian VAR Model", by Meri Papavangjeli, Research Department.
The project aims to enrich the Bank's portfolio of short-term inflation forecasting tools through the construction of a Bayesian VAR model (BVAR), which unlike standard autoregressive vector models (VAR), addresses the over-parameterization problem, allowing the inclusion of more endogenous variables, and enabling thus a more comprehensive explanation of inflation. Several univariate models are estimated to forecast short-term inflation, such as: unconditional mean, random walk, autoregressive integrated moving average models, and the best performing among them is used as a benchmark to evaluate the forecast performance of the BVAR model. In addition, an unrestricted VAR is constructed, as the most commonly used tool to obtain projections of the main economic indicators, based solely on the information that the data series provide. The results show that the BVAR approach, which incorporates more economic information, outperforms the benchmark univariate models and the VAR in different time horizons of the forecast sample, but the differences between models on their forecast performance are not statistically significant.

"The Relationship between the Change in Unemployment and Real Economic Growth in Albania", by Orion Garo, Research Department.
The aim of this project is to inquire on the type of relationship existing between the change in unemployment and the change in real GDP for the case of Albania, with the intent of understanding the co-dynamics of these two economic indicators, based on quarterly flow data provided by INSTAT.

"The Challenges of the Financial System in Albania 2019: Risks, Opportunities and Implications for Policymaking", by Ola Çami, Research Department.
This paper analyses the current challenges of the Albanian Financial System as well

as the risks and opportunities associated with them. Its purpose is to provide a comprehensive information regarding the topic, which would serve to the discussions and the exchange of opinions during the annual conference of the Bank of Albania that will be held in November 2019. This paper is intended to assist the Bank of Albania in terms of policymaking.

"A VAR Analysis of Monetary Transmission Mechanism: How does the Central Bank's REPO Rate affect the Albanian Economy?" by Denada Rada, Research Department.

This paper addresses the impact of monetary policy shock through REPO as short-term policy interest rate on GDP, inflation, money supply M3, and the exchange rate Lek/Euro in Albania, using data for the period 2002-2018. Based on the techniques commonly used in the vector autoregression literature, the results suggest that an unexpected increase in the short-term interest rate tends to be followed by a decrease in output, money supply and inflation as well as an appreciation of the domestic currency. Furthermore, this paper examines the variations in the short-term interest rate, which state significant fluctuations in GDP and money supply, while accounting little for inflation and exchange rate fluctuations.

"Trusting the Bankers: Analyzing the Demand and Supply-Side Drivers of the Credit Channel in Albania Using the Bank Lending Survey Data", by Gerti Shijaku, Research Department.

The conventional wisdom on a key question is to understand whether and to what extent bank lending is a result of credit demand factors that influences the ability of firms and households to borrow, or a result of balance sheet characteristic of financial intermediaries that tighten banks' credit supply standards that likely impair bank lending. For this reason, this material analyses this issue by relying heavily on content information from bank lending survey responses at the country level in the case of Albania on credit supply and demand side factor related firms and households. In particular, the two different channels of transmission are identified by looking at the factors affecting the decision of banks to change lending conditions and standards for their borrowers and factors linked to borrower's creditworthiness and balance sheet characteristics.

"Microeconomic Evidence of the Price-Setting Behaviour in the Albanian Economy", by Ola Çami, Research Department.

The paper aims to analyze the price-setting behaviour in the Albanian economy during t2008-2019 based on the calculation of three main indicators: the frequency, size and durability of price adjustments. The paper uses disaggregated CPI data and straight-forward statistical calculations to provide evidence regarding price rigidities and the heterogeneity of the behaviour between the groups composing the consumer's basket.

II. ARTICLES FROM OTHER CENTRAL BANKS

"Monetary Policy and Financial Conditions: A Cross-Country Study", by Tobias Adrian, Fernando Duarte, Federico Grinberg and Tommaso Mancini-Griffoli, Federal Reserve of New York.

Loose financial conditions forecast high output growth and low output volatility up to six quarters into the future, generating time-varying downside risk to the output gap, which we measure by GDP-at-Risk (GaR). This finding is robust across countries, conditioning variables, and time periods. We study the implications for monetary policy in a reduced-form New Keynesian model with financial intermediaries that are subject to a Value at Risk (VaR) constraint. Optimal monetary policy depends on the magnitude of downside risk to GDP, as it impacts the consumption-savings decision via the Euler constraint, and financial conditions via the tightness of the VaR constraint. The optimal monetary policy rule exhibits a pronounced response to shifts in financial conditions for most countries in our sample. Welfare gains from taking financial conditions into account are shown to be sizable.

https://www.newyorkfed.org/research/staff_reports/sr890.html

"Should Central Banks Issue Digital Currency?", Todd Keister and Daniel Sanches, Federal Reserve of Philadelphia.

We study how the introduction of a central bank-issued digital currency affects interest rates, the level of economic activity, and welfare in an environment where both central bank money and private bank deposits are used in exchange. Banks in our model are financially constrained, and the liquidity premium on bank deposits affects the level of aggregate investment. We study the optimal design of a digital currency in this setting, including whether it should pay interest and how widely it should circulate. We highlight an important policy tradeoff: while a digital currency tends to promote efficiency in exchange, it can also crowd out bank deposits, raise banks' funding costs, and decrease investment. Despite these effects, introducing a central bank digital currency often raises welfare.

https://www.philadelphiafed.org/-/media/research-and-data/publications/working papers/2019/wp19-26.pdf

"The Benefits and Costs of Adjusting Bank Capitalisation: Evidence from Euro Area Countries", by Katarzyna Budnik, Massimiliano Affinito, Gaia Barbic, Saiffedine Ben Hadj, Edouard Chretien, Hans Dewachter, Clara Isabel Gonzalez, Jenny Hu, Lauri Jantunen, Ramona Jimborean, Otso Manninen, Ricardo Martinho, Javier Mencia, Elena Mousarri, Laurynas Naruševičius, Giulio Nicoletti, Michael O'Grady, Selcuk Ozsahin, Ana Regina Pereira, Jairo Rivera-Rozo, Constantinos Trikoupis, Fabrizio Venditti and Sofia Velasco, ECB (European Central Bank).

The paper proposes a framework for assessing the impact of system-wide and bank-level capital buffers. The assessment rests on a factor-augmented vector autoregression (FAVAR) model that relates individual bank adjustments to macroeconomic dynamics. We estimate

FAVAR models individually for eleven euro area economies and identify structural shocks, which allow us to diagnose key vulnerabilities of national banking systems and estimate short-run economic costs of increasing banks' capitalisation. On this basis, we run a fully-fledged cost-benefit assessment of an increase in capital buffers. The benefits are related to an increase in bank resilience to adverse shocks. Higher capitalisation allows banks to withstand negative shocks and moderates the reduction of credit to the real economy that ensues in adverse circumstances. The costs relate to transitory credit and output losses that are assessed both on an aggregate and bank level. An increase in capital ratios is shown to have a sharply different impact on credit and economic activity depending on the way banks adjust, i.e. via changes in assets or equity.
https://www.bis.org/publ/work778.htm

"Does Informality Facilitate Inflation Stability?", by Enrique Alberola-Ila and Carlos Urrutia, BIS (Bank of International Settlements).
Informality is an entrenched structural trait in emerging market economies, despite of the progress achieved in macroeconomic management. Informality determines the behavior of labour markets, financial access and the productivity of the overall economy. Therefore it influences the transmission of shocks and also of monetary policy. This paper develops a simple general equilibrium closed economy model with nominal rigidities, labor and financial frictions. Informality is captured by a dual labour market where the share of informal workers is endogenous. Only formal sector firms have access to financing, which is instrumental in their production process.

Informality has a buffering effect on the propagation of demand and supply shocks to prices; the financial feature of the model exacerbates the impact of financial shocks in the formal sector while the informal sector is in principle unaffected. As a result informality dampens the impact of demand and financial shocks on wages and inflation but heighten the impact of technology shocks. Informality also increases the sacrifice ratio of monetary policy actions. From a Central Bank perspective, the results imply that the presence of an informal sector mitigates inflation volatility for some type of shocks but makes monetary policy less effective.
https://www.bis.org/publ/work778.htm

"Can an Ageing Workforce Explain Low Inflation?", by Benoit Mojon and Xavier Ragot, BIS (Bank of International Settlements)
Why is wage inflation so weak in spite of the recent sharp reduction in unemployment? We show that this may be due to an ongoing change in the composition of the labor supply. Indeed, the participation rate of workers aged between 55 and 64 has increased steadily over the last decade, from a third to above a half on average across OECD countries. This is most likely the consequence of ageing and the reform of pensions. We show that the participation rate of workers aged 55 to 64 contributes to explain why wage inflation has remained weak over the last five years. Our second result is that Phillips curves are alive and well. When exploiting the cross-country variance of the data, wage inflation remains highly responsive to domestic unemployment rates, including after the Great Recession.
https://www.bis.org/publ/work776.htm

III. RESEARCH ACTIVITIES

3.1. FRIDAY SEMINARS

"Price Formation in the Albanian Economy - a Macro-Model Approach", by Lorena Skufi and Eglent Kika, Monetary Policy Department.
This paper presents the model of the bloc's price in the Albanian macroeconomic model (MEAM), assessing a set of equations including domestic offer prices, import prices, demand prices and wages.

"Structural Analysis of the Albanian Economy: Social Accounting Matrices (SAM) Based Approach", by Enian Çela, Iris Metani, Evelina Çeliku, Monetary Policy Department.
This paper includes a detailed overview of the overall structure of the Albanian economy and its dynamics over the years. For the most part, the analysis is based on national account statistics related to Resource, Usage, and Input-Output Tables.

"Prudent Banking Behaviour. A Statistical Assessment Based on an Alternative New Index Estimated by the Principal Component Analysis Approach", by Gerti Shijaku, Research Department.
This paper analyses the factor that mainly affects the prudent banking behaviour. The purpose is to understand whether the prudent behaviour of banks is more a matter of constraints imposed by regulation or the consequence of bank decision-making. For this reason, first, we identify a number of correlated indicators that relate to both discretionary and non-discretionary approach to prudent behavior of banks, in addition to provisioning of loan losses or reserve funds. Subsequently, the principal component analysis is used to identify a new indicator, the main component, which is a linear combination of original indicators, referred to as an optimal indicator for measuring prudent behavior of the bank. In conclusion, this component is used to assess similarities and differences with the information group used to assess this indicator to understand whether prudent behavior of banks is most a matter of constraints imposed by regulation or the consequence of bank decision-making itself.

"Virtual Currencies, Technological Innovation and Central Banking", by Natasha Ahmetaj (Second Deputy Governor, Bank of Albania) and Bledar Hoda (Research Department).
The electronic infrastructure that allows transactions denominated in Bitcoin has drawn the interest of many actors in the financial industry. In this paper, the reader is introduced with the Bitcoin and its technological infrastructure as well as the potential challenges and opportunities that Bitcoin innovation might bring to policy makers.

"An Estimation of the Natural Rate of Interest in Albania", by Eglent Kika and Olti Mitre, Monetary Policy Department.
This paper presents an estimate of the natural interest rate in Albania using Bayesian technique to maximize the lithium function and the Kalman filter. The structure of the model used to identify the natural interest rate is based on Laubach and Williams (2003),

and includes a simultaneous assessment of the output gap and potential GDP growth.

"What Drives the Lek-Euro Exchange Rate?", by Altin Tanku and Ilir Vika, Research Department.

This paper aims to assess the sensitivity of exchange rate to real and monetary shocks in Albania. The distinction between these shocks helps us to better understand the role of exchange rate in the economy, whether it is a shocks absorber that stabilizes the deviations from equilibrium, or a source of instability. The analysis relies on the structural VAR method, which is widely used in literature to identify economic shocks.

"The Effect of Net Income Shocks on Firm Behavior: A variance Decomposition Approach to Firm Level Data", by Indrit Hoxha (Associate Professor of Economics, Pennsylvania State University - Harrisburg), Edward Hoang (University of Colorado, Colorado Springs).

In this paper, we apply a variance decomposition methodology to quantify the smoothness of corporate payouts. We find that firms use debt and investment to smooth a large fraction of shocks to net income to keep payouts less variable. Specifically, our empirical results show that firms keep the growth of payouts relatively small and stable over time. Furthermore, our findings support theoretical work that demonstrates that the dynamics of investment and debt policy should be jointly modeled with payout policy.

"Sectoral Accounts and Balance Sheets: Policy Uses of Sectoral Accounts", by John Joyce, IMF Expert.

The presentation was aimed at providing a general overview of sectoral accounts as well as the importance of data for the central bank and its policy design. The seminar argued the benefits of using sector accounts in more comprehensive economic and financial analyzes in view of central bank decision-making. More specifically, the use of sectoral accounts helps to provide a more in-depth and detailed analysis of households, government's financial behavior, financial interlinkages of the economy and particular sectors of the economy with the rest of the world, as well as a more complete and quicker identification of financial vulnerabilities and the impact of shocks on the economy, discrepancies in the balance sheets of the economy etc.

3.2 OTHER ACTIVITIES

Participation of the Research Department at the conference: "Financial Resilience and Systemic Risk" held on January 30-31, 2019, hosted by LSE/IGA in London.

The conference aimed to discuss, analyze and evaluate the ability and the potential of financial systems to withstand possible future crises and the ability to recover from them quickly (financial system resilience). The conference also analyzed the ability of the financial system to examine and assess the risks and to face the shocks. To this end, the discussion was organized in seven separate panels and three public lectures by well-known economics and finance figures, namely by Michael Bordo, Jacque de Larosière and Vito Tanzi. The Bank of Albania was represented in this activity by Altin Tanku, Head of the Research Department.

"Bank of Albania and its Impact on Credit Policies", by Elona Dushku, Research Department, presented on the conference: "Banks and the Albanian Territory: Financial Observations", held on May 24, 2019, hosted by "Lady of Good Counsel University".

The purpose of the presentation was to present the Bank of Albania's objectives, mission and role in maintaining price stability and financial stability in the country. After an introduction on the main macroeconomic and banking system developments, the monetary policy of the Bank of Albania was presented, its transmission to the economy and some of the challenges that the Bank of Albania faces for achieving the objectives, particularly after the global financial crisis.

"Is Competition Affecting Bank Stability after the Global Financial Crisis? Evidence from the Albanian Banking System", by Gerti Shijaku, Research Department presented on: "Workshop on Economics of the Western Balkans", held on June 24-25, 2019, hosted by LSE/IGA in London.

This activity aimed at discussing and exchanging ideas among participants on the main research topics that their countries are conducting. This activity was attended by researchers from different Western Balkan countries, which had the opportunity to present their theoretical and empirical work related to all areas of the economy. The Bank of Albania was represented by Gerti Shijaku, Research Department, who was accepted to present the paper: "Does competition affect bank stability after the global financial crisis? Evidence from the Albanian banking system".

"Bilateral Assistance and Capacity Building for Central Banks Visiting Program"

In the framework of Bilateral Assistance and Capacity Building for Central Banks Program (BCC), Ms Meri Papavangjeli (Research Department, Bank of Albania), participated in the visiting program at The Graduate Institute of International and Development Studies (IHEID) for the duration of one semester. Under the supervision of Prof. Ugo Panizza, she has been working on a research project, entitled "Forecasting the Albanian short-term inflation through a Bayesian VAR model", which aims to contribute to enriching the Bank's portfolio of short-term inflation forecasting tools. In addition to the project, she attended several courses such as: "Advanced Econometrics" course at University of Geneva, "Econometrics", "Macroeconomics" courses at IHEID, and also other activities, very useful and effective to rehearse and deepen knowledge on the main economic areas.

IV. 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)