



THE RELATIONSHIP BETWEEN MONEY SUPPLY AND INFLATION: ANALYSIS WITH PANELVAR APPROACH*

DOI: 10.17261/Pressacademia.2023.1855

PAP- V.18-2023(.)-p.73-75

Esengul Ozdemir Altinisik¹, Basak Taninmis Yucememis²

¹Duzce University, Faculty of Business Administration, Department of Insurance and Social Security, Duzce, Turkiye.

Marmara University, Institute of Banking and Insurance, Goztepe, Istanbul, Turkiye.

esengulaltinisik@duzce.edu.tr, ORCID: 0000-0002-7448-7371

²Marmara University, Institute of Banking and Insurance, Goztepe, Istanbul, Turkiye.

Board Member, Central Bank of the Republic of Turkey, Istanbul, Turkiye.

basakyuce@marmara.edu.tr, ORCID: 0000-0003-0880-0056

To cite this document

Altinisik, E.O., Yucememis, B.T., (2023). The relationship between money supply and inflation: analysis with PANELVAR approach. PressAcademia Procedia (PAP), V.18, 73-75.

Permanent link to this document: <http://doi.org/10.17261/Pressacademia.2023.1855>

Copyright: Published by PressAcademia and limited licensed re-use rights only.

ABSTRACT

Purpose- Central banks serve as institutions responsible for executing monetary policy in countries, with the primary objective of managing the money supply and ensuring price stability in the economy. These institutions formulate and implement monetary policies, controlling interest rates, maintaining price stability, managing exchange rates, and overseeing the banking sector. Through the use of both traditional and modern tools, such as policy interest rates, reserve requirements, rediscount policies, and open market operations, central banks aim to uphold stability in the economy and financial system. The economic literature extensively explores the theoretical and empirical effects of central banks' expansive and contractionary policies on inflation. This study specifically investigates the practices of selected country central banks regarding monetary policy, with a focus on understanding the relationship between money supply and inflation. The objective is to unveil the impacts of these policies on countries' macroeconomic variables and identify determinants influencing the selection of effective policies and tools in central banks' pursuit of price stability-oriented monetary policy practices.

Methodology- One of the tools central banks employ to intervene in the market is the manipulation of the money supply, influencing macroeconomic variables through expansive and contractionary policies. This study analyzes the impact of central banks' monetary policies using PanelVAR analysis for the period 2005–2022. The initial model features inflation as the dependent variable, while independent variables include money supply, policy interest rates, growth, current account deficit, budget deficit, and unemployment. These variables are modeled as annual percentage changes, with the money supply variable included as a level value after logarithmic transformation. Subsequent models are constructed with each independent variable as the dependent variable, adhering to the assumptions of VAR models. To address the stationarity condition of unit roots, cross-sectional dependencies in panel data series are tested. Following the identification of cross-sectional dependency issues, second-generation unit root tests are applied. After stationary analyses, VAR analysis is conducted, cointegration vectors are identified, and error correction models are established for further analysis. Finally, impact response analysis determines the size of the effects of the macroeconomic variables used in the analysis, and Granger causality analysis is applied to ascertain the direction of causality.

Findings- In the model for controlling the money supply, the alternative hypothesis is accepted, supporting a statistically significant relationship or a cause-and-effect relationship among policy interest rate, growth, inflation, unemployment rate, current account deficit, and budget deficit variables. In the analysis where inflation is the dependent variable, long-term cointegration between money supply, inflation, and policy interest rate is identified. There is a bidirectional causal relationship between the money supply variable and inflation and policy interest rate. A causality relationship from the current account deficit variable to the money supply is determined, but causality from the money supply to the current account deficit variable cannot be established. Causality relationships are identified between policy interest rate and inflation, money supply, growth, and current account deficit variables, with the direction of the relationship being from inflation to policy interest rate, from growth variable to policy interest rate, and from the current account deficit variable to policy interest rate. A bidirectional causality relationship is found between unemployment and growth variables, and a unidirectional causality relationship from inflation. Additionally, a bidirectional causality relationship is identified between growth and inflation variables. From the growth variable to the budget deficit variable, a unidirectional causality relationship is found. When examining impact-response graphs, a unit change in the money supply variable results in a sudden increase in the inflation variable, and this response does not dampen for 12 periods. When examining the inflation variable, a unit change in itself requires 10 periods from the perspective of money supply and 7 periods from the perspective of policy interest rate to dampen the effect.

Conclusion-The formulation of monetary policy within the framework of country dynamics, specifically through policy interest rates and inflation, ensures measured responses from other macroeconomic variables. Conscious management of the long-term cointegration between money supply, inflation, and policy interest rate plays a crucial role in effectively managing the economy. A unit shock applied to the money supply variable has a prolonged impact on inflation, lasting for 12 periods without damping. An uncontrolled inflation problem in the long term could lead to chronic issues. Balancing the impact of money supply through policy interest rates is thus crucial. In line with economic theories, policymakers and economists are advised to implement monetary policies under the assumption of the Post-Keynesian view, which asserts that money supply is intrinsic for maintaining economic stability and controlling inflation. Considering the bidirectional causality relationship between inflation and money supply, it is emphasized that structural factors are essential in controlling price changes, and solely relying on money supply may not be an effective tool. Therefore, within this framework, a structural approach is recommended.

Keywords: Money supply, inflation, monetary policy, central banks, PanelVAR.

JEL Codes: E51, E52, E31, C32

*Bu çalışma Marmara Üniversitesi Bankacılık ve Sigortacılık Enstitüsü Bankacılık Ana Bilim Dalı'nda Prof. Dr. Başak TANINMIŞ YÜCEMEMİŞ danışmanlığında yürütülen "Para Arzının Kontrolü ve Enflasyon İlişkisi: Para Politikası Uygulamaları ile Analizi" adlı doktora tezinden üretilmiştir.

REFERENCES

- Acet, H. (2008). Para politikası stratejisi olarak enflasyon hedeflemesi rejimi: teori, politika ve Türkiye üzerine bir değerlendirme. Selçuk Üniversitesi, Yayınlanmamış Doktora Tezi.
- Alkan, U. (2019). Para Politikası: Araçlar, Göstergeler ve Finansal Sisteme Aktarım. Finansal Piyasalar Para ve Bankacılık, 1.Baskı, Ankara, Nobel Yayınevi.
- Bernanke, Ben S.(2022). Büyük Enflasyonist 70'lerden COVID – 19'a ABD Merkez Bankası 21. Yüzyıl Para Politikaları. İstanbul, Scala Yayıncılık.
- Binici, M., Kara, H., ve Özlü, P.(2016). Faiz koridoru ve banka faizleri: parasal aktarım mekanizmasına dair bazı bulgular. TCMB Çalışma Tebliği, 16(08), 1-36.
- Çetin, M. (2016). Türkiye Cumhuriyet Merkez Bankası (TCMB) para politikası uygulamalarının gelişimi. Finansal Araştırmalar ve Çalışmalar Dergisi, 8(14), 67-101.
- Friedman, M. (1960). A Program for Monetary Stability, New York, Fordham University Press.
- Gujarati, Damodar N.(2016). Örneklerle Ekonometri. Ankara, BB101 Yayınları.
- Gujarati, Damodar N.(2004). Basic Econometrics Fourth Edition. The McGraw–Hill Companies.
- Gürüş, S. (2018). Uygulamalı Panel Veri Ekonometrisi. 1.Baskı, İstanbul, Der Yayınları.
- Gürkan Yay, G. (2015). Para ve Finans – Teori/Politika. 2.Baskı, İstanbul, İstanbul Bilgi Üniversitesi Yayınları.
- Gürkan Yay, G. (2006). Para Politikası Stratejileri ve Enflasyon Hedeflemesi. İktisat Dergisi, Sayı:470-471, 2006.
- Greene, William H. Econometric Analysis. New Jersey, Pearson Education, 5th Edition, 2003.
- Griffiths, William E. R., Hill C. and Judge George G. (1993). Learning And Practicing Econometrics. New York, John Wiley.
- Hsiao, C.(1986). Analysis Of Panel Data. Cambridge University Press.
- Hiç, M. ve Hiç Birol Ö.(2003). Post-Keynesian Economics. Marmara Üniversitesi İktisadi ve İdari Bilimler Dergisi 120. Kuruluş Yılı Özel Sayısı, 18(1), 45-68.
- Işık S. (2010). Para, Finans ve Kriz – Post Keynesyen Yaklaşım. Ankara: Palme Yayıncılık. Genişletilmiş 2. Baskı.
- İslatince, H.(2017). Para arzı ve enflasyon ilişkisi: Türkiye için nedensellik analizi (1988-2016). Anadolu Üniversitesi Sosyal Bilimler Dergisi, 17(3), 141-155.
- İşcanoğlu Çekiç, A. ve Gültekin H.(2019). R Uygulamalı Panel Veri Analiz ve Amprik Bir Uygulama. 1.Baskı, Bursa: Ekin Yayınevi.
- Kazancı, F. (2020). Merkez bankalarının ikili finansal sistemde kullandıkları parasal aktarım mekanizmasına Türkiye Cumhuriyet Merkez Bankası örneği üzerinden faizsiz bir yaklaşım. İslam Ekonomisi ve Finansı Dergisi, 6(2), 273-310.
- Kara, A. H. ve Orak M.(2008). Enflasyon Hedeflemesi. Ercan Kumcu (Ed.), Krizler, Para ve İktisatçılar, İstanbul, Remzi Kitabevi.
- Kutlar, A.(2009). Adım Adım EvIEWS ile Uygulamalı Çok Denklemlili Zaman Serileri. 1.Baskı, Kocaeli: Umuttepe Yayınları.
- Kutlar, A., Gulmez A., Kabasakal A. and Kutlar S. (2022). Ecological footprint, energy usage, and economic progress relationship: The MINT countries. Economic Research-Ekonomiska İstraživanja, 35(1), 15-26.
- Lütkepohl, H.(2005). New Introduction To Multiple Time Series Analysis. New York: Springer-Verlag Berlin Heidelberg.

- Mccallum, Bennett T. (2000). Alternative Monetary Policy Rules: A Comparison With Historical Settings For The United States, The United Kingdom, And Japan. NBER Working Paper No.7725.
- Mcpheil, K.(1999). Broad Money: A Guide for Monetary Policy. Bank of Canada, Ottawa, Bank of Canada.
- Mishkin, F. S. (2000). Inflation targeting in emerging-market countries. The American Economic Review, 90(2), 105-109.
- Oktar, S. ve Dalyanci, L. (2011). Türkiye ekonomisinde para politikası ve enflasyon arasındaki ilişkinin analizi. Marmara Üniversitesi İktisadi ve İdari Bilimler Dergisi, 31(2), 1-20, 2011.
- Oktar, S. (1996). Merkez Bankasının Bağımsızlığı. 1. Baskı, İstanbul: Bilim Teknik Yayınları.
- Oktar, S. (1998). Enflasyon Hedeflemesi Para Politikasının Güvenilirliği ve Fiyat İstikrarı. İstanbul, Bilim Teknik Yayınları.
- Oktar, S. (2001). Kuramda ve Uygulamada Para Kurulu, 2. Baskı. İstanbul, Bilim Teknik Yayınları.
- Öztürk, N. (2017). Para Banka Kredi, 4. Baskı. Bursa, Ekin Yayıncılık.
- Pesaran, M. H. (2004). General Diagnostic Tests for Cross Section Dependence in Panels. Institute for the Study of Labor IZA Discussion Paper No.1240.
- Pesaran, M. H. and Shin Y. (1998). Generalized Impulse Response Analysis in Linear Multivariate Models. Economic Letters, 58(1), 41-56.
- Svensson, Lars E.O. (2007). Inflation Targeting, 2. Nd Edition, The New Plagrave Dictionary of Economics.
- Takım, A. (2011). Türkiye’de Para Politikası Stratejilerinin Fiyat İstikrarına Etkisi: Enflasyon Hedeflemesi Örneği. Uluslararası Yönetim İktisat ve İşletme Dergisi, 7(13),15-35.
- Tanınmış Yucememis, B., Alkan U., ve Dağlıdır C. (2015). Yeni bir para politikası aracı olarak faiz koridoru: Türkiye’de para politikası kurulu faiz kararlarının enflasyon üzerindeki etkisi. Finansal Araştırmalar ve Çalışmalar Dergisi, 7(13), 449-478.
- TCMB, FED, ECB.(2023). Para Politikası Araştırma Yayınları. Haziran 2023 – Eylül 2023.
- Yerdelen Tatoğlu, F. (2018). Panel Zaman Serileri Analizi Stata Uygulamalı. İstanbul, Beta Yayınevi.