THE RELATIONSHIP BETWEEN FINANCE AND GROWTH IN GERMANY AND LUXEMBOURG: A TIME-SERIES ANALYSIS APPROACH

Teodora PALCAU^{a*}

^{a)} Babeş-Bolyai University, Faculty of Economics and Business Administration, Cluj-Napoca, Romania

Please cite this article as:

Palcau, T., 2023. The relationship between finance and growth in Germany and Luxembourg: A timeseries analysis approach. *Review of Economic Studies and Research Virgil Madgearu*, 16(2), pp.33-52. doi: 10.24193/RVM.2023.16.103. Article History:

Received: 4 December 2023 Accepted: 30 January 2024

Abstract: The present paper examines the economic growth and financial development relationship in two of the European Union's founding countries and Eurozone members, namely Germany and Luxembourg, by taking into consideration a large period, from 1970 to 2019. We motivate the choice of these specific two countries based on the similar rate of GDP per capita growth over the years, and also on the relevance of the financial sector in the total economy. Five different measures of financial development are employed to address the depth and efficiency of the financial sector. We apply Granger causality tests, using the cointegration and Vector Error-Correction (VEC) methodology. The empirical analysis indicates consistent results, as both in the case of Germany and Luxembourg it can be established Granger causality for the economic growth – financial development; economic growth; times series; Granger causality; EU countries

JEL Classification: E44; F43; F63; G15; G21

^{*} Corresponding author. *E-mail address:* teodora.palcau@econ.ubbcluj.ro.

References:

- 1. Abu-Bader, S., and Abu-Qarn, A. S., 2008. Financial development and economic growth: The Egyptian experience. *Journal of Policy Modeling*, 30(5), pp.887-898. https://doi.org/10.1016/j. jpolmod.2007.02.001.
- 2. Asteriou, D., and Spanos, K., 2019. The relationship between financial development and economic growth during the recent crisis: Evidence from the EU. *Finance Research Letters*, 28, pp.238-245. https://doi.org/10.1016/j.frl.2018.05.011.
- 3. Asteriou, D., and Spanos, K., 2021. The mechanisms linking the finance-growth relationship in view of the financial crisis: An empirical investigation of the EU countries. *Journal of Economic Studies*, 49(7), pp.1240-1268. https://doi.org/10.1108/JES-03-2021-0170.
- 4. Awili, S., 2015. Financial sector development and economic growth nexus: An empirical analysis of Pacific Melanesian countries. Doctoral dissertation, Flinders University, Flinders Business School.
- 5. Bagehot, W., 1873. *Lombard street*. Homewood IL: Richard D Irwin, 1962 edition.
- 6. Beck, T., and Levine, R., 2004. Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance*, 28(3), pp.423-442. https://doi.org/10.1016/S0378-4266(02)00408-9.
- Benczúr, P., Karagiannis, S., and Kvedaras, V., 2019. Finance and economic growth: financing structure and non-linear impact. *Journal of Macroeconomics*, 62, 103048. https://doi.org/10.1016/j. jmacro.2018.08.001.
- 8. Creel, J., Hubert, P., and Labondance, F., 2015. Financial stability and economic performance. *Economic Modelling*, 48, pp.25-40. https://doi.org/10.1016/j.econmod.2014.10.025.
- 9. Deidda, L., and Fattouh, B., 2002. Non-linearity between finance and growth. *Economics Letters*, 74(3), pp.339-345. https://doi. org/10.1016/S0165-1765(01)00571-7.
- 10. Ductor, L., and Grechyna, D., 2015. Financial development, real sector, and economic growth. *International Review of Economics & Finance*, 37, pp.393-405. https://doi.org/10.1016/j.iref.2015.01.001.

PALCAU, THE RELATIONSHIP BETWEEN FINANCE AND GROWTH...

- 11. Ehigiamusoe, K. U., and Samsurijan, M. S., 2021. What matters for finance-growth nexus? A critical survey of macroeconomic stability, institutions, financial and economic development. *International Journal of Finance & Economics*, 26(4), pp.5302-5320. https://doi.org/10.1002/ijfe.2066.
- 12. Eliott, J.E., 2017. [Review of the book The theory of economic development by J. Schumpeter, 1911]. Routledge.
- 13. Ferreira, C., 2017. Relevance of the EU banking sector to economic growth. *International Advances in Economic Research*, 23, pp.203-215. https://doi.org/10.1007/s11294-017-9632-1.
- 14. Fetai, B.T., 2018. Does financial development accelerate economic growth? An empirical analysis of European countries in transition. *Journal of Financial Economic Policy*, 10(3), pp.426-435. https://doi.org/10.1108/JFEP-11-2017-0118.
- 15. Granger, C. W. J., 1988. Some recent developments in a concept of causality. *Journal of Econometrics*, 39(1–2), pp.199–211. https://doi.org/10.1016/0304-4076(88)90045-0.
- 16. Jalil, A., and Ma, Y., 2008. Financial development and economic growth: Time series evidence from Pakistan and China. *Journal of Economic Cooperation*, 29(2), pp.29-68.
- 17. Mollaahmetoğlu, E., and Akçalı, B. Y., 2019. The missing-link between financial development and economic growth: Financial innovation. *Procedia Computer Science*, 158, pp.696-704. https://doi.org/10.1016/j.procs.2019.09.105.
- 18. Neanidis, K. C., 2019. Volatile capital flows and economic growth: The role of banking supervision. *Journal of Financial Stability*, 40, pp.77-93. https://doi.org/10.1016/j.jfs.2018.05.002.
- 19. Pradhan, R. P., Arvin, M. B., Norman, N. R., and Bahmani, S., 2020. The dynamics of bond market development, stock market development and economic growth: Evidence from the G-20 countries. *Journal of Economics, Finance and Administrative Science*, 25(49), pp.119-147. https://doi.org/10.1108/JEFAS-09-2018-0087.
- 20. Rousseau, P. L., and Wachtel, P., 2002. Inflation thresholds and the finance–growth nexus. *Journal Of International Money And Finance*, 21(6), pp.777-793. https://doi.org/10.1016/S0261-5606(02)00022-0.
- 21. Taddese, B., D., and Abebaw, D. A., 2021. The effect of financial sector development on economic growth of selected sub-Saharan

Africa countries. *International Journal of Finance & Economics*, 28(3), pp.2834-2842. https://doi.org/10.1002/ijfe.2566.

- 22. Wooldridge, J.M., 2012. *Introductory econometrics: A modern approach*. Fifth Edition. Nashville: Southwestern College Publishing, T ATN, 41, 8.
- 23. Zardoub, A., 2021. Exploring the links between financial flows and economic growth: A panel ARDL approach. *PSU Research Review*, (ahead-of-print).

Websites:

- 24. European Central Bank, 2022. Risk sharing in the euro area: A focus on the public channel and the COVID-19 pandemic, [online] Available at: https://www.ecb.europa.eu/pub/economic-bulletin/articles/2022/html/ecb.ebart202207_01~f71f0eaa4a.en.html [Accessed 06.09.2023].
- 25. European Commission, 2023. Economy and Finance What is the euro area?, [online] Available at: https://economy-finance.ec.europa.eu/euro/what-euro-area_en [Accessed 06.09.2023].
- 26. European Union, 2023. Facts and figures on life in the European Union, [online] Available at: < https://european-union.europa. eu/principles-countries-history/key-facts-and-figures/life-eu_en> [Accessed 06.09.2023].
- Statista, 2022a. Total assets of banks in the European Union as of December 2022, by country (in billion euros), [online] Available at: https://www.statista.com/statistics/1124813/europe-bank-total-assets-by-country/> [Accessed 14.11.2023].
- 28. Statista, 2022b. Number of employees in the banking sector in Europe in 2022, by country, [online] Available at: https://www.statista.com/statistics/940904/number-of-bank-employees-in-europe-by-country/> [Accessed 14.11.2023].
- 29. Statista, 2022c. European finance and insurance services sector value added as a percentage of the total economic output in 2022, by country, [online] Available at: https://www.statista.com/statistics/1120958/european-financial-sector-value-added-share-of-total-economy-by-country/> [Accessed 14.11.2023].
- 30. Statista, 2023a. Number of credit institutions in the Eurozone as of October 2023, by country, [online] Available at: https://www.

statista.com/statistics/349129/eu-18-credit-institutions-number/> [Accessed 14.11.2023].

- 31. Statista, 2023b. Leading financial centers in Western Europe as of March 2023, [online] Available at: https://www.statista.com/statistics/381170/leading-financial-centers-western-europe/ [Accessed 14.11.2023].
- 32. United Nations Economic Commission for Europe, 2023. Share of finance and business services in GDP, [online] Available at: https://w3.unece.org/PXWeb/en/Table?IndicatorCode=9 [Accessed 06.11.2023].
- 33. World Bank, 2016. Financial Development. World Bank Group - International Development, Poverty, & Sustainability, [online] Available at: < https://www.worldbank.org/en/publication/ gfdr/gfdr-2016/background/financial-development> [Accessed 05.09.2023].
- 34. World Bank, 2023. Global Financial Development Database. World Bank Group - International Development, Poverty, & Sustainability, [online] Available at: https://databank.worldbank.org/source/global-financial-development> [Accessed 05.09.2023].
- 35. World Bank, 2023. World Development Indicators Database. World Bank Group - International Development, Poverty, & Sustainability, [online] Available at: https://databank.worldbank.org/source/world-development-indicators> [Accessed 05.09.2023].