**An analysis of the effects of aging society on global stock markets**

*Kansuda Pankwaen (Faculty of Economics, Chiang Mai University, Chiang Mai, Thailand)*

*Woraphon Yamaka (Faculty of Economics, Chiang Mai University, Chiang Mai, Thailand)*

*Paravee Maneejuk (Faculty of Economics, Chiang Mai University, Chiang Mai, Thailand)*

**Abstract**

Purpose
The primary purpose of this study is to explore the effects of demographic transition toward aging populations on the performance of stock market indices across various economic developments. The research aims to provide valuable insights into the life-cycle hypothesis on savings patterns, investment behavior and the potential reverberations on global financial markets.

Design/methodology/approach
The study adopts a comprehensive global perspective, scrutinizing the effects of aging populations on stock market indices across developed, developing and transitional economies through the panel data analysis. Using annual data spanning the period from 1991 to 2020, encompassing a sample of 10 countries from each economic development level, the study employs the panel autoregressive distributed lag (ARDL) model with fixed effect estimation.

Findings
The findings unveil a statistically significant positive impact of the elderly population proportion on global stock market indices. However, the magnitude and contours of this impact exhibit considerable heterogeneity across different country groups. Specifically, the study finds that while the aging population significantly influences stock market performance in developed nations, its effect is overshadowed by other economic factors, such as consumer price indices and interest rates, in developing countries and economies in transition.

Originality/value
The originality and value of this study lie in its comprehensive global perspective, which encompasses a diverse array of economies at varying developmental stages. The research contributes to an understanding of the effects of demographic transitions on stock market performance on a global scale. The insights derived from this study hold significant implications for policymakers, financial institutions and investors seeking to navigate the challenges and opportunities posed by aging societies in an increasingly interconnected global economy. Additionally, the findings highlight the need for specific strategies and policies that account for the unique economic characteristics and developmental stages of different nations..

**Keywords:** Cointegration, Autoregressive distributed lag model, Aging population, Stock market.

JEL Classification —A10, C01, F30.

**References**Andersen, T.M. (2015), “The Danish pension system”, in The Danish Welfare State, Palgrave Macmillan, Cham, pp. 147-170.

Ando, A. and Modigliani, F. (1963), “The ‘life cycle’ hypothesis of saving: aggregate implications and tests”, The American Economic Review, Vol. 53 No. 1, pp. 55-84.

Bakshi, G.S. and Chen, Z. (1994), “Baby boom, population aging, and capital markets”, Journal of Business, pp. 165-202.

Bergantino, S.M. (1998), “Life cycle investment behavior, demographics and asset prices”, Doctoral dissertation, Massachusetts Institute of Technology.

Bloom, D.E., Canning, D. and Fink, G. (2010), “Implications of population ageing for economic growth”, Oxford Review of Economic Policy, Vol. 26 No. 4, pp. 583-612, doi: 10.1093/oxrep/grq038.

Bloom, D.E., Canning, D. and Lubet, A. (2015), “Global population aging: facts, challenges, solutions and perspectives”, Dædalus, Vol. 144 No. 2, pp. 80-92, doi: 10.1162/daed\_a\_00332.

Boersch-Supan, A.H. and Winter, J.K. (2001), “Population aging, savings behavior and capital markets”, NBER Working Paper.

Börsch‐Supan, A. (2003), “Labor market effects of population aging”, Labour, Vol. 17, pp. 5-44.

Börsch-Supan, A. and Ludwig, A. (2009), “Aging, asset markets, and asset returns: a view from Europe to Asia”, Japan Center for Economic Research, Vol. 4 No. 1, pp. 69-92, doi: 10.1111/j.1748-3131.2009.01109.x.

Bosworth, B.P., Bryant, R.C. and Burtless, G. (2004), The Impact of Aging on Financial Markets and the Economy: A Survey, The Center for Retirement Research, Chestnut Hill, MA.

Buchmann, M., Budliger, H., Dahinden, M., Francioni, R., Groth, H., Lenz, C. and Zimmermann, H. (2023), “Financial demography: how population aging affects financial markets”, Handbook of Aging, Health and Public Policy: Perspectives from Asia, pp. 1-22.

Cheng, M.C. and Lee, C.C. (2022), “The impact of demographic aging on the investing behavior: the case of Taiwan stock market”, Review of Pacific Basin Financial Markets and Policies, Vol. 25 No. 4, 2250026.

Cizkowicz, P., Cizkowicz-Pekala, M., Pekala, P. and Rzonca, A. (2015), “The effects of polish special economic zones on employment and investment: spatial panel modelling perspective”.

Cocco, J.F., Gomes, F.J. and Maenhout, P.J. (2005), “Consumption and portfolio choice over the life cycle”, Review of Financial Studies, Vol. 18 No. 2, pp. 491-533, doi: 10.1093/rfs/hhi017.

Coulmas, F. (2007), “Population decline and ageing in Japan: the social consequences”.

Gomes, F. and Michaelides, A. (2005), “Optimal life-cycle asset allocation: understanding the empirical evidence”, The Journal of Finance, Vol. 60 No. 2, pp. 869-904, doi: 10.1111/j.1540-6261.2005.00749.x.

Goyal, A. (2004), “Demographics, stock market flows, and stock returns”, Journal of Financial and Quantitative Analysis, Vol. 39 No. 1, pp. 115-142, doi: 10.1017/s0022109000003914.

Harper, S. (2014), Science, Vol. 346 No. 6209, pp. 587-591.

He, W., Goodkind, D. and Kowal, P. (2016), “An aging world: 2015”, U.S. Census Bureau, International Population Reports, pp. P95(16-1).

Hettihewa, S., Saha, S. and Zhang, H. (2018), “Does an aging population influence stock markets? Evidence from New Zealand”, Economic Modelling, Vol. 75, pp. 142-158, doi: 10.1016/j.econmod.2018.06.017.

Horneff, V., Maurer, R., Mitchell, O.S. and Rogalla, R. (2015), “Optimal life cycle portfolio choice with variable annuities offering liquidity and investment downside protection”, Insurance: Mathematics and Economics, Vol. 63, pp. 91-107, doi: 10.1016/j.insmatheco.2015.03.031.

Im, K. S., Lee, J. and Tieslau, M. (2005), “Panel LM unit‐root tests with level shifts”, Oxford Bulletin of Economics and Statistics, Vol. 67 No. 3, pp. 393-419.

Levin, A., Lin, C.F. and Chu, C.S.J. (2002), “Unit root tests in panel data: asymptotic and finite-sample properties”, Journal of Econometrics, Vol. 108 No. 1, pp. 1-24.

Lusardi, A. and Mitchell, O.S. (2011), “Financial literacy around the world: an overview”, Journal of Pension Economics and Finance, Vol. 10 No. 4, pp. 497-508.

Maddala, G.S. and Wu, S. (1999), “A comparative study of unit root tests with panel data and a new simple test”, Oxford Bulletin of Economics and Statistics, Vol. 61 No. S1, pp. 631-652.

Miloş, L.R. and Corduneanu, C. (2011), “Diversity of the pension systems in the European union countries”, Scientific Annals of the Alexandru Ioan Cuza University of Iasi, Economic sciences section, Vol. 58, pp. 145-155.

Modigliani, F. and Brumberg, R.E. (1954), “Utility analysis and the consumption function: an interpretation of cross-section data”, in Kurihara, K.K. (Ed.), Post-Keynesian Economics, Rutgers University Press, New Brunswick, pp. 388-436.

Ogawa, N., Matsukura, R. and Maliki (2009), “Rapid population aging and changing intergenerational transfers in Japan”, International Handbook of Population Aging, Springer Netherlands, Dordrecht, pp. 133-156.

Park, D. and Rhee, C. (2007), “Population aging and financial markets: a cross-country study”, Seoul Journal of Economics, Vol. 20 No. 3, pp. 333-354.

Park, D. and Shin, K. (2012), “Impact of population aging on Asia’s future growth”, Aging, Economic Growth, and Old-Age Security in Asia, Edward Elgar Publishing, pp. 83-110.

Pesaran, M., Shin, Y. and Smith, R.J. (2001), “Bounds testing approaches to the analysis of level relationships”, Journal of Applied Econometrics, Vol. 16 No. 3, pp. 289-326, doi: 10.1002/jae.616.

Poterba, J.M. (2001), “Demographic structure and asset returns”, The Review of Economics and Statistics, Vol. 83 No. 4, pp. 565-584, doi: 10.1162/003465301753237650.

Poterba, J.M. (2004), “Impact of population aging on financial markets in developed countries”, Economic Review, Vol. 89 No. 4, pp. 43-53.

Quayes, S. and Jamal, A.M. (2016), “Impact of demographic change on stock prices”, The Quarterly Review of Economics and Finance, Vol. 60, pp. 172-179.

Sialm, C., Starks, L.T. and Zhang, H. (2015), “Defined contribution pension plans: sticky or discerning money?”, The Journal of Finance, Vol. 70 No. 2, pp. 805-838, doi: 10.1111/jofi.12232.

Sundén, A. (2006), “The Swedish experience with pension reform”, Oxford Review of Economic Policy, Vol. 22 No. 1, pp. 133-148, doi: 10.1093/oxrep/grj009.

Wang, H. and Chen, Y. (2024), “The impact of population aging on capital structure decisions and capital market efficiency: evidence from China”, International Review of Financial Analysis, Vol. 95, 103408.

World Bank World Development Indicators (2022), “Population ages 65 and above, total”, available at: https://data.worldbank.org/indicator/SP.POP.65UP.TO (accessed 19 October 2022).

Yuan, H., Puah, C.H. and Yau, J.T.H. (2022), “How does population aging impact household financial asset investment?”, Sustainability, Vol. 14 No. 22, 15021, doi: 10.3390/su142215021.

**Further reading**

Salmeron, A.M. (2018), “The demographic cycle of savings and interest rates”, available at: https://www.caixabankresearch.com/en/economics-markets/activity-growth/demographic-cycle-savings-and-interest-rates (accessed 20 October 2022).