



Doctoral Thesis Title:

GEOSPATIAL ASSESSMENT OF STOCK MARKET RISK: TERRITORIAL INFLUENCE ON INVESTMENT SECURITY

Supervisor/s:

Angel Antonio Balaguer Beser / Joaquin Gaspar Mora Navarro

Abstract:

This research aims to integrate geospatial analysis methodologies and financial models to assess the territorial influence on stock market risk. Unlike traditional approaches focused solely on internal or sectoral financial variables, this study explicitly incorporates spatial factors such as corporate location, capital concentration, regional economic infrastructure, geo-economic accessibility, and political–regulatory stability. The general objective is to determine whether a company’s territorial position and geo-economic environment significantly contribute to explaining the security or vulnerability of its investments in financial markets.

The proposed development includes building a georeferenced database combining financial and territorial information from public and open sources, enabling the exploration of the relationship between spatial factors and stock market risk. Using spatial analysis techniques and spatial econometrics, the research will examine patterns of autocorrelation and territorial concentration of risk, as well as potential clusters of financial vulnerability or stability. A comparison between spatial and non-spatial models will be conducted to evaluate the added value of territorial factors in risk interpretation.

Expected results include the identification of spatial dependencies, the formulation of geospatial metrics to characterize stock security, and the generation of multiscale cartographic representations. This thesis seeks to contribute a methodological framework for **financial geointelligence**, integrating geomatics and financial analysis. Its exploratory nature will support the development of conceptual and cartographic tools useful for both scientific research and decision-making in investment and territorial economic planning.

Available Means: DDD

The doctoral candidate has access to high-performance personal computing equipment and specialized software for geospatial analysis (QGIS, ArcGIS, GeoDa), scientific programming languages (Python, R, Matlab), and interactive web environments (Flask, Leaflet.js, Chart.js). The research is jointly supervised by a geomatics specialist and an applied mathematician,



allowing for the proper integration of spatial analysis and statistical modeling. Additionally, the candidate has access to institutional resources, computing infrastructure, and public and academic databases.

References:

Anselin, L. (1995). *Local Indicators of Spatial Association—LISA*. *Geographical Analysis*, 27(2), 93–115. <http://doi.org/10.1111/j.1538-4632.1995.tb00338.x>

◆ Disponible en acceso abierto desde la Universidad de Illinois o ResearchGate (PDF público).

Fischer, M. M., & LeSage, J. P. (2025). *Spatial econometrics*. *Wirtschaftsuniversität Wien Working Paper Series*.

https://research.wu.ac.at/ws/portalfiles/portal/73126967/WU_SpatialEconometrics_002_.pdf

◆ PDF público, revisión actualizada sobre modelos SAR, SEM y SDM aplicables a análisis financiero y territorial.

Fotheringham, A. S., Brunsdon, C., & Charlton, M. (2002). *Geographically Weighted Regression: The Analysis of Spatially Varying Relationships*. Wiley.

◆ Disponible en capítulos abiertos y resúmenes metodológicos (ResearchGate, academia.edu).

Goodchild, M. F. (2007). *Citizens as sensors: The world of volunteered geography*. *GeoJournal*, 69(4), 211–221. <http://doi.org/10.1007/s10708-007-9111-y>

◆ Acceso abierto (SpringerLink y ResearchGate).

Moreno Serrano, R., & Vayá Valcarce, E. (2004). *Econometría espacial: nuevas técnicas para el análisis regional. Una aplicación a las regiones europeas*. Documentos de trabajo de la Asociación Española de Ciencia Regional (AEER).

<https://www.aeer.org/old/images/ImatgesArticles/2007/04-Moreno.pdf>

◆ PDF público; texto clásico en español que introduce AEDE y modelos espaciales aplicados a la economía regional.

Müllner, J., & Dorobantu, S. (2022). *Overcoming political risk in developing economies through non-local debt*. *Journal of International Business Policy*, 6(2), 159–181.

<http://doi.org/10.1057/s42214-022-00137-w>

◆ Open Access (SpringerNature).

Observatorio Metropolitano. (2007). *Madrid: ¿la suma de todos? Globalización, territorio, desigualdad*. Madrid: Traficantes de Sueños. ISBN 978-84-96453-24-1.

<https://traficantes.net/libros/madrid-la-suma-de-todos>

◆ PDF público desde la editorial (Traficantes de Sueños).