ADBA
Information Technology in Economics and Business
Cutting-Edge Scientific Solutions

e-ISSN: 3023-8943
RESEARCH ARTICLE
Vol.2 / No.2 / 2025 / pp.38-43
https://doi.org/10.69882/adba.iteb.2025072

The Dynamic Impact of Gold and Oil Uncertainty on XU100, CDS, and Exchange Rate in Türkiye: A Wavelet Analysis

Buğra Bağcı *,[1]
*School of Economics and Administrative Sciences, Hitit University, 19040, Çorum, Türkiye.

ABSTRACT Geopolitical tensions and macroeconomic fluctuations in global markets have significantly influenced investor behavior and the direction of financial markets. In this turbulent environment, strategic commodities such as gold and oil have emerged as prominent safe-haven assets. The price volatility of these assets is considered a key indicator of market uncertainty and is measured through implied volatility indices, namely the GVZ (Gold Volatility Index) and OVX (Oil Volatility Index). In this respect the relationship between these indices and financial indicators becomes particularly critical during periods of economic distress. This study examines the effects of GVZ and OVX indices on the main financial variables in Türkiye, namely XU100 index, USD/TRY exchange rate and CDS spreads, in the time-frequency domain using wavelet analysis method. The analyses are conducted through wavelet power spectrum, wavelet coherence, and phase difference techniques. The findings reveal that GVZ exerts strong and persistent influences on exchange rates and CDS spreads, particularly over medium to long term horizons, often acting as a leading indicator. OVX also demonstrates a leading role, with more pronounced effects in the short to medium term. In contrast, the XU100 index exhibits a weaker and more fragmented response to these uncertainties, mostly limited to short-term episodes. In conclusion, implied volatility indices represent significant indicators for both investment decisions and macroeconomic policymaking, particularly in economies like Türkiye that are vulnerable to external shocks. This study underscores the necessity of analyzing uncertainty financial market interactions within a time frequency framework and offers meaningful policy implications for uncertainty management.

KEYWORDS
Uncertainty
Gold
Oil
Wavelet analysis
GVZ
OVX

INTRODUCTION

Global financial markets have undergone a significant transformation in recent years due to rising geopolitical tensions, volatility in energy supply, and growing macroeconomic uncertainty. Within this context, strategic commodities such as gold and oil have played a pivotal role in shaping investor decisions and financial market dynamics, both through their price levels and inherent volatility. Historically, these two commodities have been considered safe-haven assets, often used by investors seeking protection against inflation and uncertainty (Gokmenoglu and Fazlollahi 2015; Bouri *et al.* 2017). Implied volatility indices developed by the Chicago Board Options Exchange (CBOE) provide a quantifiable measure of investors' short term uncertainty perceptions about these assets.

The OVX index captures the volatility of oil prices, while the GVZ index reflects the expected volatility of gold prices. These indices offer forward looking insights into market expectations and have become increasingly relevant in understanding the interactions between commodity markets and financial indicators particularly in emerging economies where macro financial vulnerabilities are more pronounced (Chen *et al.* 2018; Luo and Qin 2017).

The literature examining the relationship between uncertainty indices and stock markets highlights the role of these indices in risk transmission channels. Several studies utilizing implied volatility indices have shown that the impact of commodity market fluctuations on financial systems intensifies during periods of crisis (Xiao *et al.* 2018; Alqahtani and Chevallier 2020). Moreover, implied volatility indices are found to possess greater predictive power compared to traditional volatility models (Dutta 2017). This study explores the effects of gold (GVZ) and oil (OVX) market uncertainty on Türkiye's financial markets. Specifically, the relationships between these uncertainty indices and the XU100 stock index, CDS spreads, and the USD/TRY exchange rate are examined using time-frequency decomposition via wavelet analysis. This method enables the identification of how these relationships evolve across different time horizons and frequency bands. The wavelet based approach facilitates a simultaneous assessment of both short term fluctuations and long term trends (Jain and Biswal 2017).

The primary aim of this study is to investigate the time-frequency dependent effects of implied volatility indicators on Türkiye's financial system. In particular, the dynamic interactions between macro financial variables such as exchange rate volatility,

Manuscript received: 27 June 2025,
Revised: 15 July 2025,
Accepted: 18 July 2025.

[1]bugrabagci@hitit.edu.tr (**Corresponding author**)

credit risk, and capital market performance are examined within the context of a developing economy. This approach enables a more comprehensive understanding of the transmission mechanisms through which uncertainty influences investment behavior. This study contributes to the literature both in terms of scope and methodology. While previous research has largely focused on developed markets or relied on conventional time series models, this study adopts a wavelet based analytical framework specifically tailored to the Turkish context. The methodology allows for a joint analysis of short term shocks and long term dependencies, offering more robust insights for policymakers and investors during periods of heightened uncertainty (Bouri *et al.* 2017; Xiao *et al.* 2018).

The empirical findings reveal that the effects of GVZ and OVX on Türkiye's financial indicators are both time varying and frequency dependent. GVZ exerts a strong and persistent influence particularly on the CDS spreads and exchange rate, predominantly at medium to long term scales, and often leads their movements. On the other hand, OVX, also displays a leading role, especially in the short to medium term, affecting both the exchange rate and CDS spreads. In contrast, the XU100 index exhibits a more fragmented and less pronounced reaction to these volatility shocks, with limited coherence concentrated in shorter time horizons. These findings suggest that global volatility indicators should be systematically considered in the formulation of portfolio diversification strategies, the interpretation of investor risk perception, and the design of macroeconomic and financial policies in Türkiye.

LITERATURE REVIEW

Gold and oil volatility indices (GVZ and OVX) have emerged as prominent measures of uncertainty over the past decade, particularly in the context of their impact on financial markets. Numerous studies have investigated the relationship between these indices and various financial variables in both developed and developing economies. Gokmenoglu and Fazlollahi (2015) analyzed the relationship between the S&P500 index and gold and oil prices using the VAR model, concluding that the three variables exhibit long-term cointegration. Aloui *et al.* (2015) employed wavelet coherence analysis to examine the time dependent relationship among gold, oil, and stock markets, finding strong interdependence, particularly during crisis periods.

Maghyereh and Awartani (2016) used implied volatility based models to explore the causal dynamics between gold, oil, and stock markets, suggesting that volatility indices contain more informational value than prices. Ji *et al.* (2016) analyzed interactions between stock markets and commodity volatility indices through a dynamic conditional correlation model, noting that volatility spillovers intensify during crises. Bouri *et al.* (2017) investigated the Indian market, identifying nonlinear causality and cointegration between GVZ, OVX, and stock indices, with bidirectional and time varying linkages. Dutta (2017) analyzed the effect of oil volatility on clean energy stock returns using GARCH-type models and found a significant negative impact.

Jain and Biswal (2017) applied a wavelet approach to examine frequency domain causality between GVZ and stock returns in China and India, revealing stronger long-term relationships. Chen *et al.* (2018) evaluated the predictive power of the CBOE oil volatility index and found it superior to traditional volatility models. Xiao *et al.* (2018) assessed the asymmetric impact of OVX on Chinese stock returns under different market conditions, identifying direction-dependent responses. Wen *et al.* (2018) emphasized the persistent effects of oil volatility on financial stability, especially in emerging markets. Alqahtani and Chevallier (2020) studied the influence of oil and gold volatility indices on stock markets in Gulf Cooperation Council countries using VAR and spillover index methods, identifying both short and long term directional effects. Li and Yoon (2022) applied wavelet decomposition and Granger causality to examine the effects of GVZ and OVX on emerging markets, highlighting the frequency sensitive nature of uncertainty transmission. Overall, this literature highlights the importance of time-frequency analytical techniques in evaluating the financial implications of implied volatility indices. In particular, wavelet analysis has proven effective in capturing dynamic relationships between uncertainty and financial indicators, especially during periods of economic turbulence.

MATERIAL AND METHODS

In this study, the wavelet analysis used is a powerful spectral decomposition method that allows the simultaneous examination of time series in both frequency and time domains. This method, which differs in operation from Fourier transformation and traditional time-series models stands out especially in the analysis of non-stationary data (Gençay *et al.* 2001; Zhao *et al.* 2004; Rua and Nunes 2009; Mariani *et al.* 2020). Wavelet analysis decomposes signals at different resolutions through small, localized waves to detect time-varying frequency structures. In this respect, it differs from the classical Fourier transformation; while Fourier transformation reveals only the frequency components of the signal, it does not show the time intervals in which these components occur (Graps 1995; Arı *et al.* 2008). On the other hand, wavelet transformation enables the simultaneous analysis of these two dimensions and allows a detailed examination of short- and long-term relationships in the time-frequency plane (Crowley 2007).

In the analytical process, the Continuous Wavelet Transform (CWT) is first applied to decompose the time series data into frequencies. Then, with the help of Wavelet Coherence (WTC), the correlation between two different time series is analyzed in both time and frequency dimensions. This analysis reveals in which frequency bands and time intervals there are significant relationships between the variables (Adebayo *et al.* 2021; Kalmaz and Kirikkaleli 2019). The coherence coefficient ranges between 0 and 1; the closer to 1, the stronger the relationship is considered, while values closer to 0 indicate a weak relationship. The theoretical foundations of the wavelet method were laid by Goupillaud *et al.* (1984). The variables k and f represent time and frequency, respectively, allowing the relationship between time and frequency dimensions to be revealed (Adebayo *et al.* 2021).

$$\psi_{k,f}(t) = \frac{1}{\sqrt{f}}\psi\left(\frac{t-k}{f}\right), \quad k, f \in \mathbb{R}, f \neq 0 \tag{1}$$

As stated by Alola and Kirikkaleli (2019), the key variables in the wavelet approach are k and f. Therefore, the main factor for revealing the relationship concerning time-frequency is the continuous wavelet transition (CWT). Accordingly, the CWT approach is preferred to relate two variables expressed in time series format. The CWT approach is expressed as follows:

$$W_p(k,f) = \int_{-\infty}^{\infty} p(t)\frac{1}{\sqrt{f}}\psi^*\left(\frac{t-k}{f}\right)dt \tag{2}$$

Here, p(t) represents the past time series and can be expressed as follows (Adebayo *et al.* 2021).

$$p(t) = \frac{1}{C_\psi}\int_0^{\infty}\int_{-\infty}^{\infty}|W_p(a,b)|^2\frac{dadb}{b^2} \tag{3}$$

The variance of the wavelet power spectrum (WPS) of the time series is expressed as follows (Adebayo *et al.* 2021).

$$WPS_p(k,f) = |W_p(k,f)|^2 \tag{4}$$

Wavelet coherence (WTC) estimates the cross-spectrum ratio of each spectrum of the time series by combining their frequencies (Kalmaz and Kirikkaleli 2019). The wavelet transformation of two time series is expressed as follows:

$$W_{pq}(k,f) = W_p(k,f)W_q^*(k,f) \tag{5}$$

Here, $W_p(k,f)$ and $W_q(k,f)$, represent the CWT of p(t) and q(t), respectively. The squared value of WTC is expressed as:

$$R^2(k,f) = \frac{|S(f^{-1}W_{pq}(k,f))|^2}{S(f^{-1}|W_p(k,f)|^2)S(f^{-1}|W_q(k,f)|^2)} \tag{6}$$

If $R^2(k,f)$ is close to 0, it indicates zero or weak correlation between the two series; if it is close to 1, it shows a correlation between the examined variables at a specific scale (Shahbaz *et al.* 2015).

In light of the above, wavelet analysis examines the multidimensional relationships of the time series over time and reveals the dynamic structure of the relationship between variables in relation to time and frequency.

The data for this information was obtained weekly from the "investing" website. The data covers the time period between 01.01.2013 and 31.05.2025. Data belonging to the times that were missing or did not match with different situations in this date range were cleaned. Prior to the empirical analysis, the series were subjected to an outlier detection process. Outliers were adjusted following the methodology of (Bodart and Candelon 2009), which entails replacing the outlier value with the mean of a centered 10 day window around the affected observation. This approach facilitated the refinement of the dataset and improved the reliability of the subsequent econometric analysis.

DISCUSSION AND RESULTS

In this section, the relationship between GVZ (Gold Volatility Index) and OVX (Oil Volatility Index) and the key indicators of the Turkish economy namely XU100, the USD/TRY exchange rate, and CDS spread is analyzed using wavelet-based methods in the time-frequency domain. The analysis employs continuous wavelet spectra, component decompositions, as well as wavelet coherence, correlation, and covariance techniques.

The wavelet coherence analysis reveals the time frequency interaction between the XU100 index and the Gold Volatility Index (GVZ). Significant coherence regions are observed particularly in the short and medium term frequency bands (scale range of 4–32). In these regions, most of the arrows point to the left, with a predominance of upper left and lower left directions, indicating a negative phase relationship and suggesting that GVZ tends to lead XU100. This implies that increases in global gold market uncertainty are followed by inverse movements in the Turkish stock market index. Such a pattern may reflect capital outflows from equities due to rising risk perception, thereby exerting downward pressure on the index. In the longer term frequency bands (64–128), some meaningful but less pronounced coherence zones are also present, again with predominantly leftward arrows. Overall, the analysis suggests that the GVZ may exert leading and negative influences on the XU100 over multiple time horizons (Figure 1).

The wavelet coherence analysis illustrates the dynamic interaction between the USD/TRY exchange rate and the Gold Volatility Index (GVZ) across time and frequency domains. Notably, strong coherence regions emerge predominantly within the long term frequency band (scale 64–128), particularly in the later periods of the sample. In these zones, arrows are mostly directed to the left, especially upper left, suggesting a negative phase relationship and indicating that GVZ tends to lead the exchange rate. This pattern implies that increases in global gold market uncertainty are followed by depreciations in the Turkish lira, reflecting a transmission mechanism from international risk sentiment to domestic currency markets. In earlier segments of the graph, rightward pointing arrows in some lower frequency areas suggest temporary positive and synchronous co-movements, but these instances are weaker and less persistent. Overall, the findings indicate that GVZ plays a leading and inversely correlated role in shaping the dynamics of the USD/TRY exchange rate, particularly over longer time horizons (Figure 2).

The wavelet coherence analysis between the Credit Default Swap (CDS) spread and the Gold Volatility Index (GVZ) reveals distinct patterns of time frequency dependence. Strong and persistent coherence is particularly evident in the long term frequency bands (scales 64–128), where leftward pointing arrows, especially lower left and upper left, dominate. These directions indicate a negative phase relationship, suggesting that increases in gold market volatility tend to be followed by declines in Türkiye's perceived sovereign creditworthiness, as captured by CDS spreads. Moreover, the consistent orientation of these arrows toward the left confirms that GVZ leads the movements in CDS. In contrast, coherence in shorter frequency bands is more fragmented, with occasional high coherence regions exhibiting mixed arrow directions. Overall, the results suggest that global gold volatility plays a leading and inversely correlated role in shaping Türkiye's sovereign risk spreads over longer time horizons (Figure 3).

The wavelet coherence analysis between the XU100 index and the Oil Volatility Index (OVX) demonstrates notable time frequency variations in their co-movement structure. Strong and sustained coherence is observed particularly in the medium to long term frequency bands, where most arrows point to the left, especially in the lower left direction. This configuration reflects a negative phase relationship, indicating that OVX tends to lead XU100 and that increases in oil market volatility are followed by declines in the Turkish stock market index. This relationship suggests a flight to safety behavior by investors in response to rising global uncertainty in energy markets. Additionally, short term coherence areas with similar arrow orientations reinforce the inverse and anticipatory influence of OVX on XU100. Overall, the results imply that the oil volatility index serves as a leading and negatively correlated factor influencing equity market dynamics in Türkiye, especially over longer time scales (Figure 4).

The wavelet coherence analysis between the USD/TRY exchange rate and the Oil Volatility Index (OVX) reveals significant time frequency dependencies, particularly in the medium and long term scales. Notably, strong coherence regions emerge within the scale range of 64–128, especially in the early and late parts of the sample. In these regions, leftward pointing arrows, including lower left and upper left directions, dominate indicating a negative phase relationship and suggesting that OVX leads the exchange rate dynamics. This implies that increased oil market volatility is typically followed by a depreciation of the Turkish lira, likely reflecting the spillover effects of global energy related uncertainty into domestic currency markets. In some shorter frequency episodes, transient coherence patches are observed with mixed directional arrows, indicating more complex and possibly

bidirectional short term effects. Overall, the results underscore OVX's role as a leading and negatively associated factor in the determination of exchange rate movements over longer horizons (Figure 5).

The wavelet coherence analysis between the Credit Default Swap (CDS) spreads and the Oil Volatility Index (OVX) reveals significant and persistent interactions across time and frequency domains. High coherence is particularly visible in the medium to long term frequency bands, where most arrows point to the left, predominantly in the upper left and lower left directions. This pattern indicates a negative phase relationship, suggesting that increases in oil market volatility are followed by rising CDS spreads, i.e., a perceived deterioration in sovereign creditworthiness. The leftward orientation of the arrows further implies that OVX tends to lead movements in CDS spreads, underscoring its role as an early indicator of rising country risk. In shorter time scales, coherence is weaker and more fragmented, though some brief co-movement episodes are still visible. Overall, the results highlight OVX as a leading and inversely associated factor influencing the dynamics of Türkiye's sovereign credit risk, particularly over longer horizons (Figure 6).

Taken together, the wavelet coherence analyses underscore the significant and dynamic influence of global volatility indicators namely GVZ and OVX on key financial and macroeconomic variables in Türkiye, including the XU100 index, USD/TRY exchange rate, and CDS spreads. Across most pairings, strong coherence is observed in medium and long term frequency bands, with directionality patterns consistently revealing negative phase relationships and lead lag structures, where global volatility indices frequently act as leading indicators. These findings suggest that heightened uncertainty in global gold and oil markets tends to propagate into the Turkish economy through various channels, exerting downward pressure on equity prices, upward pressure on sovereign risk spreads, and causing depreciation of the local currency. Overall, the results emphasize the vulnerability of emerging market economies like Türkiye to external volatility shocks and highlight the importance of incorporating global uncertainty measures into financial stability and risk management frameworks.

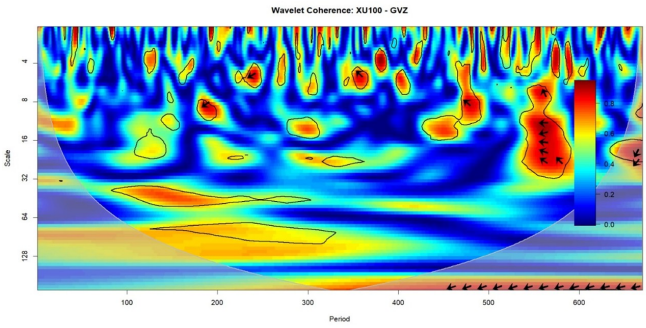

Figure 1 Wavelet Coherence between the Gold Volatility Index (GVZ) and XU100 Index.

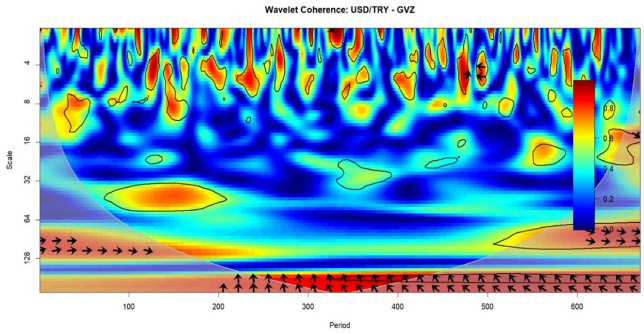

Figure 2 Wavelet Coherence between the Gold Volatility Index (GVZ) and USD/TRY Exchange Rate.

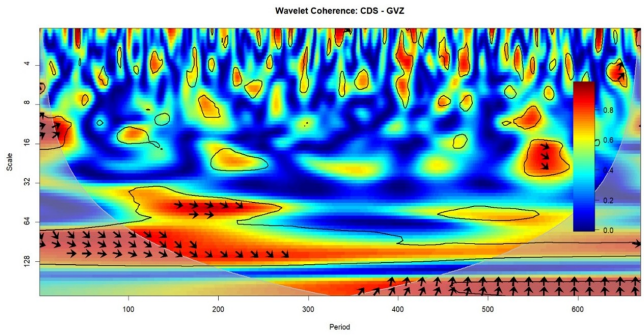

Figure 3 Wavelet Coherence between the Gold Volatility Index (GVZ) and CDS Spread.

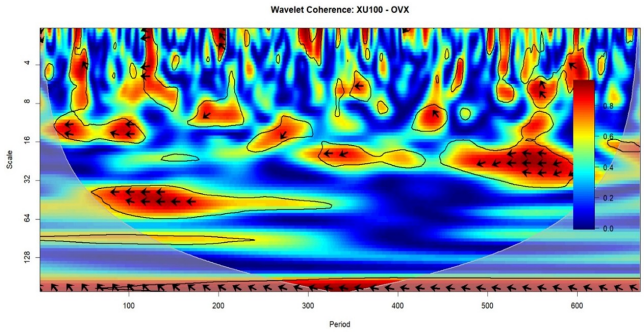

Figure 4 Wavelet Coherence between the Oil Volatility Index (OVX) and XU100 Index.

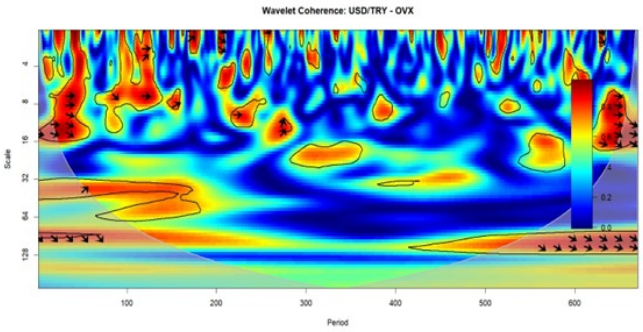

Figure 5 Wavelet Coherence between the Oil Volatility Index (OVX) and USD/TRY Exchange Rate.

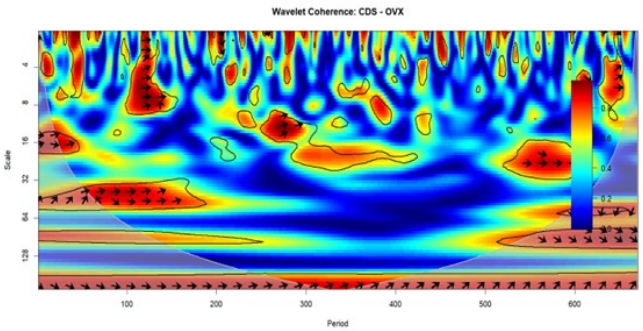

Figure 6 Wavelet Coherence between the Oil Volatility Index (OVX) and CDS Spread.

CONCLUSION

This study comprehensively examines the time–frequency interactions between Türkiye's key financial indicators namely the XU100 index, the USD/TRY exchange rate, and CDS spread and global volatility indices GVZ (Gold Volatility Index) and OVX (Oil Volatility Index), using wavelet coherence methodology. The findings clearly demonstrate that the effects of GVZ and OVX on Türkiye's financial markets are both frequency dependent and time varying.

The analyses reveal that GVZ exerts a strong and persistent influence particularly on the CDS spread and exchange rate, with the gold volatility index leading movements in these variables across medium to long-term frequency bands. On the other hand, OVX also shows a leading role but has relatively more pronounced effects in short to medium term frequencies, especially on the exchange rate and CDS spreads. In contrast, the XU100 index displays a weaker and more fragmented relationship with both GVZ and OVX, indicating that capital markets react less consistently and less immediately to global volatility shocks than do currency and sovereign risk indicators.

These results suggest that GVZ and OVX are not merely speculative or sentiment based indices, but function as early warning indicators of macro financial stress, particularly in emerging markets that are highly sensitive to global risk transmission channels. The lead–lag structures and phase differences observed across all variables further underscore the necessity for dynamic and proactive policy responses.

1. GVZ and OVX should be systematically monitored by economic policymakers and central banks as part of Türkiye's financial stability and macroprudential surveillance frameworks.

2. Given the asymmetric impact of global volatility on different market segments, monetary and fiscal policy responses should be differentiated with more responsive instruments aimed at exchange rate and CDS volatility, and longer-horizon strategies for capital market resilience.

3. To mitigate the effects of external volatility, Türkiye should reassess its reserve adequacy, external borrowing structure, and FX risk management strategies, particularly during periods of rising global uncertainty.

4. Since market perceptions respond rapidly to volatility spikes, transparent communication and expectation management should be prioritized during periods of stress to reduce herd behavior and overshooting in exchange and credit markets.

In conclusion, this study not only enhances the understanding of the dynamic interlinkages between global volatility and Türkiye's financial system but also contributes valuable policy relevant insights to support macro financial stability and crisis resilience efforts in emerging markets.

Availability of data and material

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of interest

The author declares that there is no conflict of interest regarding the publication of this paper.

Ethical standard

The author has no relevant financial or non-financial interests to disclose.

LITERATURE CITED

Adebayo, T. S., D. Kirikkaleli, and E. B. Agyekum, 2021 Time-frequency relationship between energy consumption and economic growth: Evidence from wavelet coherence analysis. Environmental Science and Pollution Research **28**: 58145–58157.

Alola, A. A. and D. Kirikkaleli, 2019 Renewable energy consumption in eu-28 countries: Policy toward pollution mitigation and economic sustainability. Energy Policy **132**: 352–360.

Aloui, R., S. Hammoudeh, and D. K. Nguyen, 2015 A time–frequency approach for assessing the relationships between oil, gold and stock markets. Applied Economics **47**: 4083–4099.

Alqahtani, A. and J. Chevallier, 2020 Dynamic spillovers between gulf cooperation council's stocks, vix, oil and gold volatility indices. Journal of Risk and Financial Management **13**: 69.

Arı, A., B. Kumcuoğlu, and N. Güngör, 2008 Dalgacık dönüşüm ve görüntü sıkıştırma uygulamaları. İstanbul Üniversitesi Mühendislik Fakültesi Dergisi **1**: 1–6.

Bodart, V. and B. Candelon, 2009 Evidence of interdependence and contagion using a frequency domain framework. Emerging Markets Review **10**: 140–150.

Bouri, E., A. Jain, P. C. Biswal, and D. Roubaud, 2017 Cointegration and nonlinear causality amongst gold, oil, and the indian stock market: Evidence from implied volatility indices. Resources Policy **52**: 201–206.

Chen, H., L. Liu, and X. Li, 2018 The predictive content of cboe crude oil volatility index. Physica A: Statistical Mechanics and its Applications **492**: 837–850.
Crowley, P. M., 2007 A guide to wavelets for economists. Journal of Economic Surveys **21**: 207–267.
Dutta, A., 2017 Oil price uncertainty and clean energy stock returns: New evidence from crude oil volatility index. Journal of Cleaner Production **164**: 1157–1166.
Gençay, R., F. Selçuk, and B. Whitcher, 2001 *An introduction to wavelets and other filtering methods in finance and economics*. Academic Press.
Gokmenoglu, K. K. and N. Fazlollahi, 2015 The interactions among gold, oil, and stock market: Evidence from s&p500. Procedia Economics and Finance **25**: 478–488.
Goupillaud, P., A. Grossmann, and J. Morlet, 1984 Cycle-octave and related transforms in seismic signal analysis. Geoexploration **23**: 85–102.
Graps, A., 1995 An introduction to wavelets. IEEE Computational Science and Engineering **2**: 50–61.
Jain, A. and P. C. Biswal, 2017 Uncovering frequency domain causality between gold and the stock markets of china and india: Evidence from implied volatility indices. Finance Research Letters **23**: 23–30.
Ji, Q., B.-Y. Liu, and J. Cunado, 2016 Risk spillovers and dynamic correlation between oil prices and stock market sectors. Economic Modelling **59**: 377–390.
Kalmaz, D. B. and D. Kirikkaleli, 2019 Modeling co2 emissions in an emerging market: empirical finding from ardl-based bounds and wavelet coherence approaches. Environmental Science and Pollution Research **26**: 5210–5220.
Li, X. and S.-M. Yoon, 2022 Asymmetric and frequency-dependent connectedness between energy and stock markets. Resources Policy **76**: 102617.
Luo, X. and S. Qin, 2017 Oil price uncertainty and chinese stock returns: New evidence from the oil volatility index. Finance Research Letters **20**: 29–34.
Maghyereh, A. I. and B. Awartani, 2016 The connectedness between crude oil and financial markets: Evidence from implied volatility indices. Journal of Commodity Markets **4**: 56–69.
Mariani, M. S., M. Boloş, D. Streimikiene, and F. Kialka, 2020 The impact of oil price shocks on green bond markets: A wavelet coherence analysis. Resources Policy **68**: 101744.
Rua, A. and L. C. Nunes, 2009 International comovement of stock market returns: A wavelet analysis. Journal of Empirical Finance **16**: 632–639.
Shahbaz, M., A. K. Tiwari, and M. I. Tahir, 2015 Analyzing time–frequency relationship between oil price and exchange rate in pakistan through wavelets. Journal of Applied Statistics **42**: 690–704.
Wen, F., X. Yang, and D. Song, 2018 Forecasting oil market risk using pre-crisis predictors: A regime-switching approach. Energy Economics **74**: 783–795.
Xiao, J., M. Zhou, F. Wen, and F. Wen, 2018 Asymmetric impacts of oil price uncertainty on chinese stock returns under different market conditions: Evidence from oil volatility index. Energy Economics **74**: 777–786.
Zhao, L., E. Zivot, and J. Wang, 2004 Wavelet analysis in financial markets. University of Washington, Working Paper .

How to cite this article: Bağcı, B. The Dynamic Impact of Gold and Oil Uncertainty on XU100, CDS, and Exchange Rate in Türkiye: A Wavelet Analysis. *Information Technologies in Economics and Business*, 2(2), 38-43, 2025.