

## Documents

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**Pandemic impact on the co-movement and hedging effectiveness of the global futures markets**

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**Abstract**

This paper examines the impact of COVID-19 on five of the world's most liquid futures markets. The results of our wavelet coherence analysis for spot futures reveal two important findings. First, spot futures coherence movements during the pandemic period are influential at both low and high frequency scales. Second, the spectrogram shows mixed causality directions at all scales of observation in the period before and during the pandemic. In terms of hedging effectiveness, OLS and VECM show improvements in hedging effectiveness. Nevertheless, multiscale analysis with wavelet methods shows that hedging effectiveness depends on the hedge period due to the instability of the spot-futures association during the pandemic period. Our results refute the conventional wisdom among finance scholars that a stronger link between spot and futures markets during the crisis improves hedging effectiveness. We would emphasise that investment baskets and hedge pairs should be reviewed frequently to optimise results. © 2023 Investment Analysts Society of South Africa.

**Author Keywords**

COVID-19; futures; hedging effectiveness; optimal hedge ratio; wavelet

**References**

- Bampinas, G., Panagiotidis, T.  
**Oil and stock markets before and after financial crises: A local Gaussian correlation approach**  
(2017) *Journal of Futures Markets*, 37 (12), pp. 1179-1204.
- Burrus, C.S., Gopinath, R.A., Guo, H.  
(1998) *Introduction to Wavelets and Wavelet Transforms*,  
Prentice-Hall
- Buyukkara, G., Kucukozmen, C.C., Uysal, E.T.  
**Optimal hedge ratios and hedging effectiveness: An analysis of the Turkish futures market**  
(2022) *Borsa Istanbul Review*, 22 (1), pp. 92-102.
- Chopra, M., Mehta, C.  
**Is the COVID-19 pandemic more contagious for the Asian stock markets? A comparison with the Asian financial, the US subprime and the Eurozone debt crisis**  
(2022) *Journal of Asian Economics*, 79, p. 101450.
- Corbet, S., Hou, Y.G., Hu, Y., Oxley, L.  
**The influence of the COVID-19 pandemic on the hedging functionality of Chinese financial markets**  
(2022) *Research in International Business and Finance*, 59, p. 101510.
- Dash, S.R., Maitra, D.  
**The COVID-19 Pandemic Uncertainty, Investor Sentiment, and Global Equity Markets: Evidence from the Time-frequency Co-movements**  
(2022) *The North American Journal of Economics and Finance*, 62, p. 101712.

- Davidovic, M.  
**From pandemic to financial contagion: High-frequency risk metrics and Bayesian volatility analysis**  
(2021) *Finance Research Letters*, 42, p. 101913.
- Dutta, A., Bouri, E., Noor, M.H.  
**Climate bond, stock, gold, and oil markets: Dynamic correlations and hedging analyses during the COVID-19 outbreak**  
(2021) *Resources Policy*, 74, p. 102265.
- Ederington, L.H.  
**The hedging performance of the new futures markets**  
(1979) *The Journal of Finance*, 34 (1), pp. 157-170.
- Emm, E.E., Gay, G.D., Ma, H., Ren, H.  
**Effects of the Covid-19 pandemic on derivatives markets: Evidence from global futures and options exchanges**  
(2022) *Journal of Futures Markets*, 42 (5), pp. 823-851.
- (2011),  
Hedge accounting under IFRS 9—A closer look at the changes and challenges,. London, United Kingdom. Retrieved from
- Fernández-Macho, J.  
**Wavelet multiple correlation and cross-correlation: A multiscale analysis of Eurozone stock markets**  
(2012) *Physica A*, 391 (4), pp. 1097-1104.
- Foley, S., Kwan, A., Philip, R., Ødegaard, B.A.  
**Contagious margin calls: How COVID-19 threatened global stock market liquidity**  
(2022) *Journal of Financial Markets*, 59, p. 100689.
- Goodell, J.W., Goutte, S.  
**Co-movement of COVID-19 and Bitcoin: Evidence from wavelet coherence analysis**  
(2021) *Finance Research Letters*, 38, p. 101625.
- Harjoto, M.A., Rossi, F., Lee, R., Sergi, B.S.  
**How do equity markets react to COVID-19? Evidence from emerging and developed countries**  
(2021) *Journal of Economics and Business*, 115, p. 105966.
- In, F., Kim, S.  
(2013) *An introduction to wavelet theory in finance: a wavelet multiscale approach*, World scientific
- Lee, H.C., Chien, C.Y.  
**Hedging performance and stock market liquidity: Evidence from the Taiwan futures market**  
(2010) *Asia-Pacific Journal of Financial Studies*, 39 (3), pp. 396-415.
- Li, J., Huang, L., Li, P.  
**Are Chinese crude oil futures good hedging tools?**  
(2020) *Finance Research Letters*, 38, p. 101514.
- Lütkepohl, H., Saikkonen, P.  
**A lag augmentation test for the cointegrating rank of a VAR process**  
(1999) *Economics Letters*, 63 (1), pp. 23-27.
- Peckham, R.  
**Contagion: Epidemiological models and financial crises**  
(2014) *Journal of Public Health (Oxford, England)*, 36 (1), pp. 13-17.

- Percival, D.B., Walden, A.T.  
(2000) *Wavelet methods for time series analysis*, 4.  
Cambridge university press
- Sargan, J.D.  
**Wages and prices in the United Kingdom: A study in econometric methodology**  
(1964) *Econometric analysis for national economic planning*, pp. 25-54.  
Hart P.E., Mills G., Whitaker J.K., (eds), London: Butterworths., (Eds
- Schwarz, G.  
**Estimating the dimension of a model**  
(1978) *Annals of Statistics*, 6 (2), pp. 461-464.
- Sebastião, H., Godinho, P.  
**Bitcoin futures: An effective tool for hedging cryptocurrencies**  
(2020) *Finance Research Letters*, 33, p. 101230.
- Salisu, A.A., Vo, X.V., Lucey, B.  
**Gold and US sectoral stocks during COVID-19 pandemic**  
(2021) *Research in International Business and Finance*, 57, p. 101424.
- Sifat, I., Ghafoor, A., Ah Mand, A.  
**The COVID-19 pandemic and speculation in energy, precious metals, and agricultural futures**  
(2021) *Journal of Behavioral and Experimental Finance*, 30, p. 100498.
- Song, G., Xia, Z., Basheer, M.F., Shah, S.M.A.  
**Co-movement dynamics of US and Chinese stock market: Evidence from COVID-19 crisis**  
(2022) *Ekonomika Istrazivanja*, 35 (1), pp. 2460-2476.
- Torrence, C., Webster, P.J.  
**Interdecadal changes in the ENSO-monsoon system**  
(1999) *Journal of Climate*, 12 (8), pp. 2679-2690.
- Umar, Z., Gubareva, M., Teplova, T.  
**The impact of Covid-19 on commodity markets volatility: Analyzing time-frequency relations between commodity prices and coronavirus panic levels**  
(2021) *Resources Policy*, 73, p. 102164.
- Vukovic, D.B., Lapshina, K.A., Maiti, M.  
**Wavelet coherence analysis of returns, volatility and interdependence of the US and the EU money markets: Pre & post crisis**  
(2021) *The North American Journal of Economics and Finance*, 58, p. 101457.
- Yousaf, I., Ali, S.  
**Discovering interlinkages between major cryptocurrencies using high-frequency data: New evidence from COVID-19 pandemic**  
(2020) *Financial Innovation*, 6, p. 45.
- Yule, G.U.  
**Why do we sometimes get nonsense-correlations between time-series? A study in sampling and the nature of time-series**  
(1926) *Journal of the Royal Statistical Society*, 89 (1), pp. 1-63.

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