

## **Impact of Observation Classification on The Result of ANN Analysis Based on The Example of WTI Oil Options\***

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### **Abstract**

The risk of changes in crude oil prices is particularly important from the perspective of enterprises dealing in selling and processing this commodity. Moreover, in the era of the war in Ukraine, Covid-19 and possible future oil supply disruptions caused by unforeseen geopolitical factors, it may be assumed that the volatility of prices in the oil market will be high. The subject of the study is to investigate the possibility of using artificial neural networks to generate signals to take long position in European WTI call options. This paper shows that an important factor in making decisions to use call options is the risk appetite directly related to the desired return from the purchase of options. Moreover, we showed that the number of observation classes significantly affects network results for the options market. The we also demonstrated that artificial neural networks can be a useful tool supporting the process of hedging against the risk of oil price increases.

**Keywords:** crude oil price risk; commodity options; artificial neural networks (ANNs); support decision-making; war in Ukraine, COVID-19.