

PREDICTION OF GOLD PRICE USING HIDDEN MARKOV MODEL

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ABSTRACT

Hidden Markov Models (HMM) is a stochastic model where the system being modeled is assumed as a Markov process with unknown parameters. The challenge is to determine the hidden parameters from observed parameters. It provides a probabilistic framework for modeling a time series forecasting. If the causative factors are not observed directly and has the properties of Markov Chain, so, a pair of observation and its causative factors is Hidden Markov Model. The proposed model was applied on minted gold price change in 2008 until 2010. Gold price was influenced by several factors, such as international recession, crude price, government policy, etc. The algorithm used to estimate the parameters, thus the estimated parameters were used to calculate the expectation value of gold to found the most likely sequence. The proposed model then would be coded using Matlab. The result of this study showed that the continuous hidden Markov model could be applied on gold with 2.25%, 2.22%, 2.96% and 2.8% of total percentage error.

Keywords: Hidden Markov Model, Time Series, Gold, Estimated Parameter