

# Prediksi Indeks Harga Saham Gabungan (IHSG) dengan Pendekatan Machine Learning Algoritma Support Vector Machine Menggunakan Faktor Ekonomi Domestik dan Internasional = Support Vector Machine for Predicting Indonesia Stock Exchange Composite Index (IDX Composite) Using Domestic and International Economic Factors

Marcelinus David Wahono, author

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## Abstrak

Krisis ekonomi yang terjadi di masa lalu menimbulkan pertanyaan tentang validitas Efficient Market Hypothesis dan mendorong berkembangnya model-model yang dapat memprediksi indeks harga saham. Salah satunya yaitu prediksi memanfaatkan komponen ekonomi yang diketahui mempengaruhi IHSG dan memprosesnya dengan teknik machine learning. Support Vector Machine dikenal memiliki kemampuan untuk menangani data berdimensi tinggi dan memiliki keunggulan dibandingkan algoritma yang lain. Performa SVM akan dibandingkan dengan Artificial Neural Network (ANN) dan algoritma klasik Multiple Linear Regression (MLR). Studi ini diawali mengidentifikasi pengaruh komponen ekonomi terhadap IHSG mendatang. Hasil penelitian menunjukkan bahwa SVM memiliki kinerja paling baik dalam memprediksi harga indeks saham keesokan harinya ( $t + 1$ ), namun kinerja ANN paling baik untuk memprediksi  $t + 5$ ,  $t + 10$ , dst.

.....The economic crisis that occurred in the past raised questions about the validity of the Efficient Market Hypothesis and encouraged the development of models that can predict the stock price. One of them is prediction utilizing economic components known to affect IDX composite index and processed by machine learning techniques. Support Vector Machines are known to have the ability to handle high-dimensional data and have advantages over other algorithms. SVM performance will be compared to Artificial Neural Networks (ANN) and the classic Multiple Linear Regression (MLR) algorithm. This study begins with identifying the influence of economic component on the future IDX composite index. The results showed that SVM had the best performance in predicting the next day stock index prices ( $t+1$ ), but ANN's performance was better than others for predicting  $t+5$ ,  $t+10$ , and so on.