

# Translating Directional Accuracy into Profitability: Machine Learning based Predictive Models for Global Stock Indices

**Jasleen Kaur<sup>1</sup>, Khushdeep Dharni<sup>2</sup>**

*<sup>1</sup>Assistant Professor, Chitkara Business School  
Chitkara University*

*Rajpura, Punjab, India*

*<sup>2</sup>Associate Professor, School of Business Studies  
Punjab Agricultural University*

*Ludhiana, Punjab, India*

## Abstract

Understanding the linkage between directional accuracy and return remains a negligibly explored domain in context of stock market prediction. Maximum studies in the given domain are based on mathematical accuracy measures and directional accuracy measures. Merely efficiency of directional prediction may not suffice as the magnitude of directional change also assumes importance in stock markets. Without any doubt profitability measures reign in supreme in case of stock market. Current study attempts to investigate the association between Accuracy rate and returns for data sets based on seven stock indices across globe. The outcome of the study relies on machine learning: ANN (Artificial Neural Networks) and SVM (Support Vector Machine) based predictive models, built using 196 data sets of variable duration. The results of the current research reveal a strong positive correlation between Accuracy rate and returns. Moreover, significant variations in the extent of the relationship are also observed. Quantile regression models indicate relatively stronger relationship between Accuracy rate and return at the lower range of returns. Findings of the study carry value for academicians, researchers, and practitioners in the field of machine learning and stock market predictions.

**Keywords:** Directional accuracy, Profitability measures, Machine learning, Support Vector Machines, Artificial Neural Network