

# Stock Price Prediction Analysis (Python)

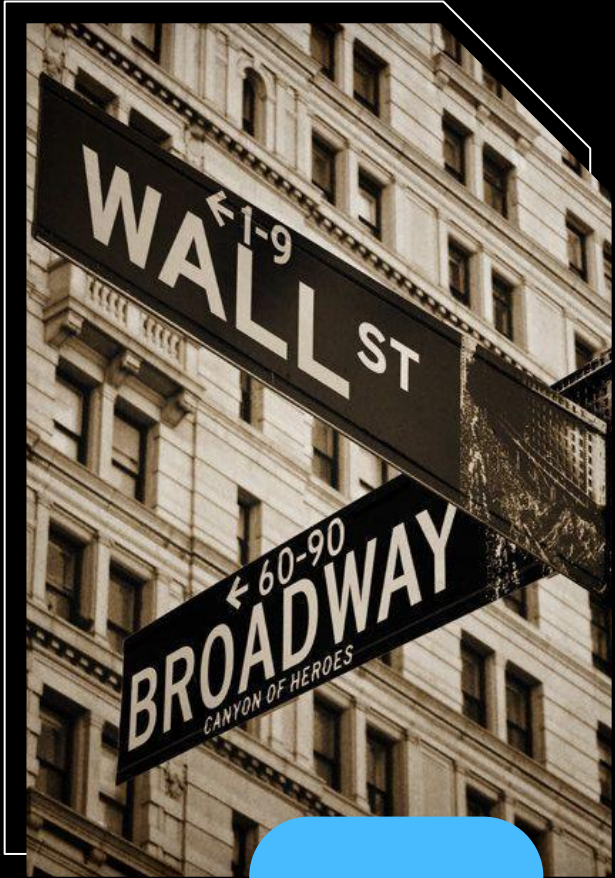


# Contents

Main points of this presentation

<b>Introduction</b>	General overview of the stock market and its importance
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<b>Prediction Techniques</b>	Useful mathematical models we can use
<b>Predictive accuracy and improvements</b>	How accurate are these techniques and what can we do to improve them
<b>The future</b>	What is the future outlook on these models
The end	Student information and Thank you






# Introduction

The stock market is a platform where investors buy and sell shares of publicly traded companies. It plays a vital role in the economy, enabling companies to raise capital for growth and providing individuals with opportunities to invest and grow their wealth. Predicting the stock market is useful because it allows investors to make informed decisions based on anticipated price movements. By analyzing market trends, historical data, and company fundamentals, investors can strategically allocate their investments, manage risks, and potentially maximize returns.



# \$100,000,498,300,000

as of September 2021, amount of money invested in the market



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# Data and its importance



# Data and its importance



## Data Purpose

Stock market data consists of information on stock performance and transactions. It is readily available through financial platforms, though real-time and comprehensive data may require subscriptions.

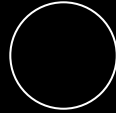


## Data Sources

Accurate stock market data is essential for reliable models, as it ensures valid analysis. Reputable organizations provide reliable data sources for building accurate and effective models.



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# Techniques

01

Moving Average  
(MA) model

02

Monte Carlo  
Simulation

03

(ARIMA)  
Model

04

Machine  
Learning



# Technique Set



## Complexity

Stock price prediction techniques such as Moving Average, Monte Carlo Simulation, ARIMA, and Machine Learning are complex due to their reliance on statistical analysis, historical data, and algorithmic modeling for accurate forecasting.



## Accuracy

The accuracy of stock price prediction techniques varies depending on data quality, model assumptions, and market dynamics.



## Scalability

Stock price prediction techniques have varying degrees of scalability. Depending on large datasets and adapt to changing market conditions, some may face limitations due to computational complexity and data requirements.

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# Accuracy and improvements



# Accuracy and improvements

## Current State

The current state of accuracy in machine learning for stock price prediction varies. While machine learning algorithms show promise in capturing complex patterns and relationships in data, their accuracy heavily depends on the quality and quantity of input features and the chosen algorithm. Proper feature selection, model tuning, and robust training data are crucial for improving accuracy. ARIMA (Autoregressive Integrated Moving Average) is a widely used time series forecasting method. Its accuracy depends on the underlying assumptions of stationarity and linearity in data. ARIMA models can perform well when applied to relatively stable and predictable markets, but their accuracy may suffer in volatile or non-linear market conditions.

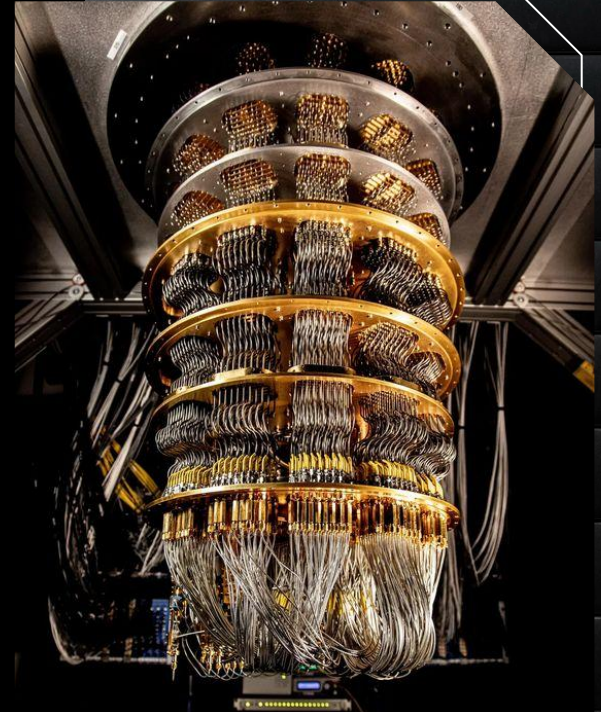
## Improvements

Improvements in machine learning for stock price prediction involve advanced algorithms, feature engineering, and ensemble models. Deep learning architectures, like RNNs and CNNs, excel in capturing complex patterns and dependencies in financial time series data.

To enhance ARIMA accuracy, hybrid models integrating machine learning techniques can be explored. Incorporating external factors like news sentiment, macroeconomic indicators, and social media data improves forecasting by considering non-traditional market drivers. Techniques like GARCH for modeling volatility can further refine stock price predictions.

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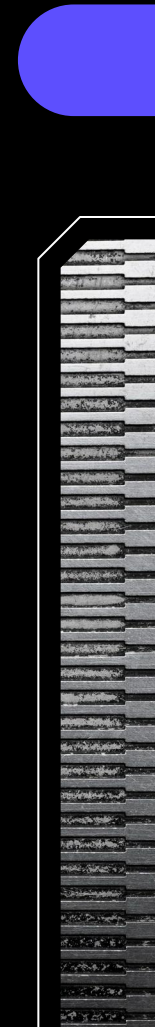
The future





# Future

The future of stock price prediction holds potential with the development of quantum computing. Quantum algorithms may offer superior computational power to analyze vast amounts of financial data and complex market dynamics. This could lead to more accurate predictions and improved risk management strategies. However, quantum computing for stock price prediction is still in its early stages, and further research and development are required to harness its full potential.



The end

Thank You  
Endri Lohja

