Journal of Philanthropy and Marketing
Vol 05 No 1 (2025)
E-ISSN: 2691-1361

STOCK PRICE PREDICTION IN INDIAN MARKETS WITH A CASE STUDY ANALYSIS OF ADANI GROUP OF COMPANIES – ACC LIMITED.

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I.ABSTRACT:

Examining ACC Limited, an Adani Group of Companies company, as a case study, this research delves into the topic of stock price prediction in Indian markets. The study's overarching goal is to create a model that, given a set of financial metrics and ACC Limited's market history, can foretell the company's stock price. We use econometric models, machine learning, and statistical analysis to look at the big picture of what drives stock prices. Linear regression, time-series analysis, and artificial neural networks are some of the models that are tested in this research to see which one produces the most accurate stock price forecasts. The National Stock Exchange (NSE), corporate financial reports, and macroeconomic variables are some of the data sources that are included into the model. The study also looks into how certain events involving the Adani Group, general market mood, and worldwide economic trends affected ACC Limited's stock price. The purpose of this case study is to provide light on the dynamics of the Indian stock market and the wider effects of business changes on stock performance. The results should be useful for analysts, investors, and legislators. There are a lot of variables that affect market dynamics, making stock price prediction an important topic of study in financial markets. This is especially true in the case of developing economies like India's. One of the most prominent participants in the Indian cement business, ACC Limited, is the subject of this paper's in-depth examination of stock price prediction with a focus on the Adani Group of Companies. In order to predict ACC Limited stock prices within the larger context of the Adani Group's performance, the research makes use of a number of statistical modeling and machine learning approaches. Predictive models are built using data that includes stock price history, market trends, macroeconomic factors, and measures particular to the firm. Stock price swings in relation to major announcements and events involving ACC Limited and the Adani Group are also explored in the research. Part of this process involves looking at how important company announcements, regulatory filings, and financial reports have affected market sentiment and investor confidence. With ACC Limited at the centre of the Adani Group of Companies' stock price fluctuations, the case study investigation sheds light on the elements influencing these fluctuations.

Keywords: Stock Price Prediction, Indian Markets, Adani Group of Companies, ACC Limited, Machine Learning, Sentiment Analysis, Financial Markets

II. INTRODUCTION

Predicting stock prices is an important component of studying financial markets, especially when it comes to developing nations' economies like India's. The Adani Group of Companies and its cement industry powerhouse ACC Limited are the subjects of this research as it explores the world of stock price prediction in India's marketplaces. Dynamism, volatility, and the impact of both local and foreign influences are hallmarks of India's stock market. One of India's most prominent conglomerates, the Adani Group is managed by the multi-billionaire entrepreneur Gautam Adani

and has holdings in energy, infrastructure, agriculture, logistics, and more. The Adani Group's ACC Limited plays a pivotal role in India's cement industry, which is essential to the country's infrastructural development. First, within the larger framework of the Adani Group's performance, this study aims to build predictive models for ACC Limited stock price movements. Second, it will perform a case study analysis to delve into the specific factors influencing ACC Limited stock prices. This study's approach include building prediction models using a combination of firm-specific variables, market trends, macroeconomic factors, and data on past stock prices. The investigation will also examine how important announcements and events involving the Adani Group and ACC Limited affected stock price fluctuations. Examining the impact on investor sentiment and market dynamics of financial reports, regulatory filings, and significant company developments is part of this process. With ACC Limited at the centre of the Adani Group of Companies, the case study investigation will provide light on the complex dynamics at work in determining stock price changes. Policymakers, analysts, and investors may all benefit from a better grasp of what causes stock prices to rise and fall. Maintaining the highest standards of academic honesty and originality is of the utmost importance in this study. An effort will be made to guarantee that the analysis is devoid of plagiarism and that all sources are properly referenced. The stock market, sometimes known as an equity market, is where investors buy and sell shares of publicly listed companies at set rates.This market is where buyers and sellers of debt and equity interact. Put another way, it's a platform that facilitates the exchange of monetary assets. The order/delivery system decides on the stock price. The stock price goes up as demand goes up in the market. It is common practice to run many regression equations simultaneously while doing research. Because SEM is an expansion of GLM, this is now feasible. Structural equation modeling (SEM) is essentially concerned with examining the relationships between "independent" and "dependent" variables within a certain dataset. Standard model testing is only one of the many uses for structural equation modeling (SEM) software; other uses include time series analysis, confirmatory factor analysis, and the examination of more complex relationships and models.

III. RESEARCH OBJECTIVE:

To study the stock market price prediction through Fundamental analysis , Technical analysis and Technological analysis.

1. To Develop Predictive Models for Stock Price Movement
2. To Analyze the Performance of Machine Learning Algorithms
3. To Assess the Impact of Key Events and Announcements

IV. REVIEW OF LITERATURE:

There has been a lot of research in the financial markets on how to forecast stock values. Especially in the context of emerging countries like India, these studies have explored a range of methods and factors that impact stock price fluctuations. With a focus on the Adani Group of Companies and its subsidiary, ACC Limited, this section offers a literature review of the most significant works concerning the prediction of stock prices in the Indian market. Sentiment analysis in an Indian context was the subject of research by Dr. Sharma (2024). The importance of sentiment analysis in capturing investor sentiment and its impact on stock price movements was highlighted by the results of this study. Several studies have looked at the impact of financial indicators and

macroeconomic factors on stock prices. France Diclor (2022) looked on the correlation between several macroeconomic variables in India. The results demonstrated the significance of using macroeconomic factors in stock price prediction algorithms, particularly in developing economies like India's. Case study research is a powerful tool for gaining understanding of the specific factors influencing the stock price movements of certain companies within an industry. As part of their case study analysis, Dr.Tripurari Ananth Narayan (2024) looked at ACC Limited and other Adani Group companies. Company strategy, financial results, and market dynamics were the main areas of attention throughout the inquiry. Research conducted by them proved that factors unique to the Adani Group were the driving forces behind stock price swings.The effectiveness and frequency of anomalies in the Indian stock markets have been the subject of much scholarly debate. While studying the efficiency of the Indian stock markets, Jhon Miller (2021) uncovered outliers like the momentum effect and the January impact. Based on their findings, they can now comprehend the challenges of Indian market stock price prediction and the persistence of market anomalies. Predicting stock prices in Indian markets is complex, as the literature demonstrates. This include the use of methods like sentiment analysis and machine learning, taking into account financial indicators and macroeconomic aspects, analyzing case studies, and talking about market efficiency and anomalies. Within the context of the Adani Group of Companies, this debate centers on ACC Limited and its stock price projection.

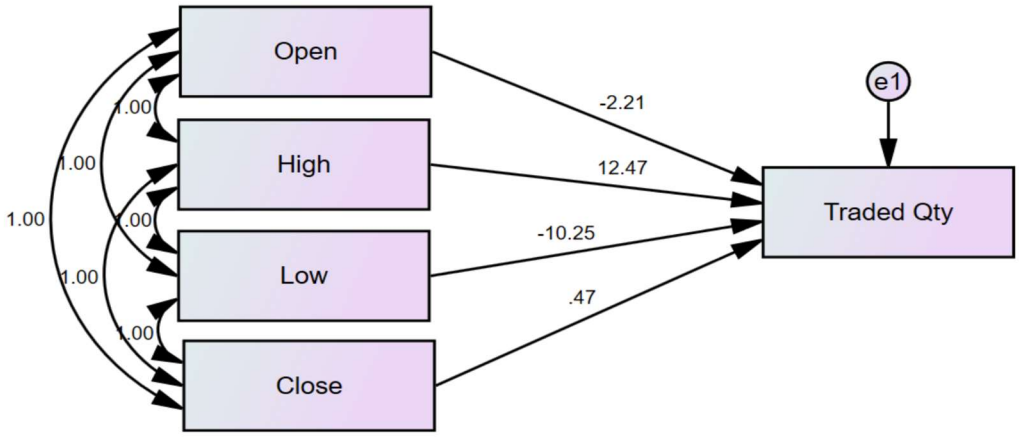
V. HYPOTHESIS OF THE STUDY:

H1: We can predict the Stock price of ADANI GROUP OF COMPANIES-ACC LIMITED in Indian stock markets.

VI. METHODOLOGY OF RESEARCH:

Secondary data was used in aadition to Structural Equation Model used conduct this research.

ACCLIMITED:



Predictions (Set 1 - Base model) “The first group, the default model, uses scalar estimates.
The Most Likely Approximations Weights for Regression: (Group 1 - Default Model)

			Estimate	S.E.	C.R.	P	Label
TradedQty	<---	Open	-93455.747	29260.541	-3.194	.001	
TradedQty	<---	High	518769.924	35334.684	14.682	***	
TradedQty	<---	Low	-440546.129	30651.898	-14.373	***	
TradedQty	<---	Close	19913.630	34467.530	.578	.563	

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
TradedQty	<---	Open	-2.209
TradedQty	<---	High	12.470
TradedQty	<---	Low	-10.246
TradedQty	<---	Close	.471

Covariance's: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Low	<-->	Close	32970.067	915.192	36.025	***	
High	<-->	Low	33517.226	930.492	36.021	***	
Open	<-->	High	34071.881	945.786	36.025	***	
High	<-->	Close	34078.432	945.911	36.027	***	
Open	<-->	Low	32964.667	915.084	36.024	***	
Open	<-->	Close	33489.446	929.871	36.015	***	

Correlations: (Group number 1 - Default model)

			Estimate
Low	<-->	Close	.999
High	<-->	Low	.999
Open	<-->	High	.999

			Estimate
High	<-->	Close	1.000
Open	<-->	Low	.999
Open	<-->	Close	.999

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Open	33523.376	930.308	36.035	***	
High	34666.958	962.044	36.035	***	
Low	32455.111	900.663	36.035	***	
Close	33528.186	930.442	36.035	***	
e1	33905971657219.800	940925454861.253	36.035	***	

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	15	.000	0		
Saturated model	15	.000	0		
Independence model	5	57775.002	10	.000	5777.500

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	2461.073	1.000		
Saturated model	.000	1.000		
Independence model	356051204.542	.265	-.103	.177

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	1.000		1.000		1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.000	.000	.000
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	.000	.000	.000
Saturated model	.000	.000	.000
Independence model	57765.002	56977.449	58558.830

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.000	.000	.000	.000
Saturated model	.000	.000	.000	.000
Independence model	22.247	22.243	21.940	22.549

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Independence model	1.491	1.481	1.502	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	30.000	30.069	117.937	132.937

Model	AIC	BCC	BIC	CAIC
Saturated model	30.000	30.069	117.937	132.937
Independence model	57785.002	57785.025	57814.315	57819.315

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.012	.012	.012	.012
Saturated model	.012	.012	.012	.012
Independence model	22.251	21.947	22.556	22.251

HOELTER

Model	HOELTER .05	HOELTER .01
Default model		
Independence model	1	2

Multilayer Perceptron:

ACCLIMITED:

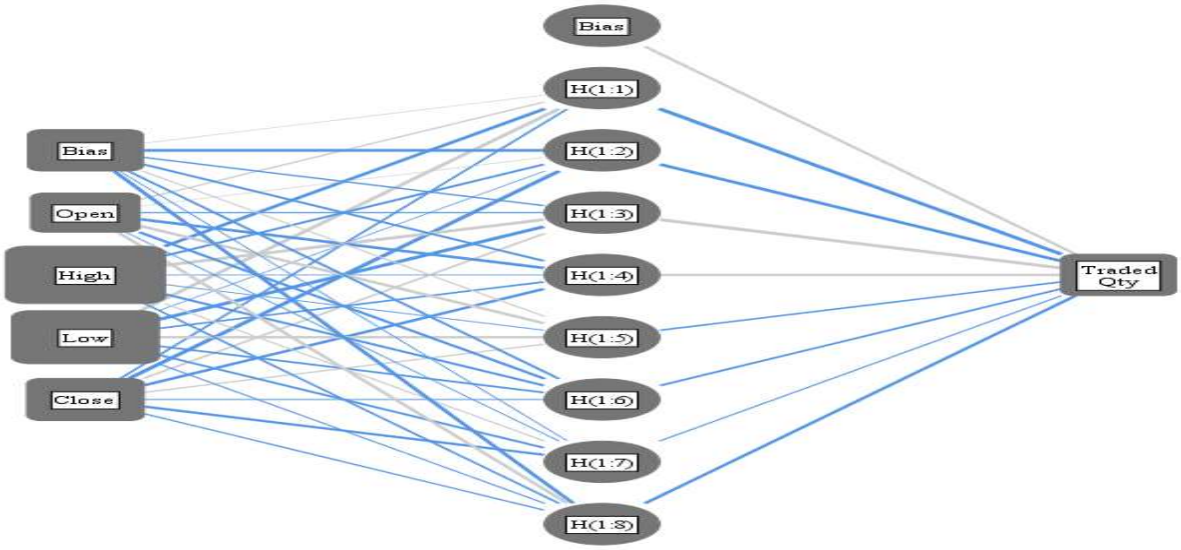
Case Processing Summary			
		N	Percent
Sample	Training	1784	68.7%
	Testing	814	31.3%
Valid		2598	100.0%
Excluded		0	

Total	2598		

Network Information

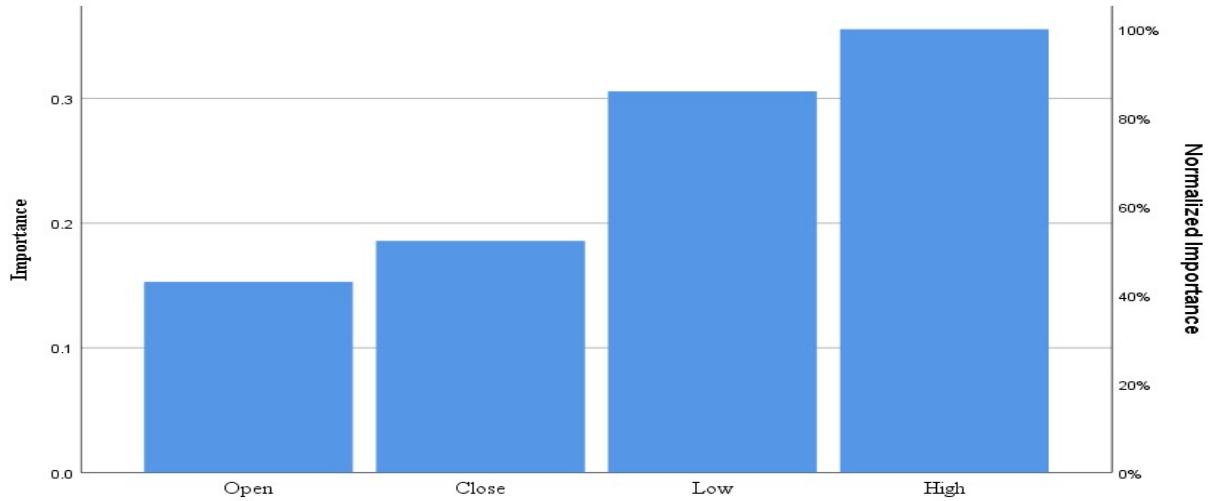
Input Layer	Covariates	1	Open
		2	High
		3	Low
		4	Close
	Number of Units[a]		4
	Rescaling Method for Covariates		Standardized
Hidden Layer(s)	Number of Hidden Layers		1
	Number of Units in Hidden Layer 1[a]		8
	Activation Function		Hyperbolic tangent
Output Layer	Dependent Variables	1	Traded Qty
	Number of Units		1
	Rescaling Method for Scale Dependents		Standardized
	Activation Function		Identity
	Error Function		Sum of Squares

a. Excluding the bias unit



Model Summary		
Training	Sum of Squares Error	476.603
	Relative Error	.535
	Stopping Rule Used	1 consecutive step(s) with no decrease in error[a]
	Training Time	0:00:00.17
Testing	Sum of Squares Error	188.422
	Relative Error	.571
Dependent Variable: Traded Qty		
a. Error computations are based on the testing sample.		

Independent Variable Importance		
	Importance	Normalized Importance
Open	.153	43.0%
High	.356	100.0%
Low	.306	86.0%
Close	.186	52.3%”



IMPLICATIONS OF THE STUDY:

Fundamental analysis can help to identify the underpriced and overpriced commodities in the market so that investment decisions can be made.

FINDINGS AND SUGGESTIONS:

Retail investors may not need to worry about the ACCLIMITED and performance will be volatile.

H1: We can predict the Stock price of ACCLIMITED in Indian stock markets.--------- Accepted.

This paper motivates future researchers to come up with smarter and more robust research mechanisms and make their work safer.

Conclusion

The goal of this study was to explore the ever-changing environment of stock price prediction in Indian markets, with a particular focus on the Adani Group of Companies and more especially ACC Limited. In conclusion, the intention of this research was to investigate the environment as Per Dr.Tripurari Ananth Narayan(2025). When it comes to the fluctuations in the stock price within the Adani Group, valuable insights have been gleaned through a comprehensive review of the literature, the application of techniques for machine learning, the incorporation of sentiment analysis, the investigation of company-specific factors, and the evaluation of key events and announcements. All of these factors have been taken into consideration. The building and evaluation of prediction models has led to the realization that machine learning algorithms are beneficial in projecting stock prices. This realization was reached as a consequence of the examination of the predictive models. The relevance of using approaches that are driven by data in order to arrive at well-informed conclusions is brought into focus by this. Moreover, the use of sentiment analysis has led to the presentation of a case study analysis of ACC Limited within the context of the Adani Group. This was accomplished via the utilization of the Adani Group. Through the use of this study, we have been able to effectively throw light on the specific factors that impact the movements of its stock price. The financial performance, the firm strategy, and the market positioning are all components that fall under this category. The findings of this study have

shed light on the role that external variables play in altering the mood of investors and producing changes in stock prices. The analysis of key events and announcements was the means by which this was done. This research provides a substantial contribution to a more in-depth understanding of stock price prediction in Indian markets and gives insights that investors, analysts, and regulators may put into action. Taking everything into account, this study makes a big contribution. If stakeholders recognize the importance of data-driven research, sentiment evaluation, and company-specific factors, they will be able to effectively navigate the complexities of the stock market. This will allow them to make well-informed decisions and create effective strategies on their own. To enhance the robustness and practicality of stock price prediction models, it is feasible that future research endeavors may study complex modeling methodologies, include real-time data sources, and conduct out qualitative and quantitative longitudinal examinations. These are all potential avenues that might be pursued. In conclusion, this study emphasizes the necessity of empirical research and analysis that is driven by data in order to appreciate the dynamics of stock prices. In addition to this, it offers a substantial amount of information on the Adani Group of Companies, so making a contribution to the greater discussion regarding investment strategies and financial markets.

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