The Impact of the Textile Sector on the Pakistan Stock Exchange

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Abstract: - This research paper aimed to examine what impact does the textile industry has on the Pakistan Stock Exchange (PSX). In Pakistan's economy, the textile industry holds a very significant position and this sector is regarded as one of the country's largest and most vital sectors. This research study has aimed to examine the correlation between textile firms' performance and the stock market, focusing on the PSX particularly. We have opted quantitative research approach after gathering the secondary data from the PSX and all financial reports of textile companies listed on the exchange. To assess the performance and influence of the textile industry on the stock market, various financial indicators such as trading volume, stock price, financial ratios and market capitalization are employed. The research tends to investigate the correlation between the textile industry indicators and stock market performance which is done through statistical analysis and regression models. The core objective of this study aims to shed light on the extent to which the textile industry affects investors sentiments, market trends, and market volatility. Furthermore, considering factors such as government policies, exports, global market trends, and foreign investment, the research explores the mechanism through which it affects the textile industry and PSX. This study also examines the interplay between the textile industry and other sectors within the stock exchange, finding potential spill-over effects and interdependencies.

Keywords: - Textile industry, Pakistan Stock Exchange, economic impact, stock market performance, value chain, government policies, global market dynamics, investor attitude, market stability.

Received: March 2, 2024. Revised: September 16, 2024. Accepted: October 14, 2024. Published: November 25, 2024.

1. Introduction

The textile sector can also be referred to as the heartbeat of the economy of Pakistan which distinguishes it from other industries. This sector holds much significance contributing massively to the GDP of Pakistan as well as creating loads of jobs, this sector with its deep roots and access to abundant resources, has made a name for itself in the global textile market. Talking about the sector our approach is about a wide array of activities, from creating fibers to whipping up garments, all of them playing a major part in the country's manufacturing and export.**[1]**

The textile sector in the heart of Pakistan's economy stands tall, heavily contributing to both jobs and exports. It is like the engine of a car that drives economic growth when it comes to ranking in foreign cash and boosting industrial development especially. Taking 2020, for example - Pakistan's textile exports hit a massive $12.4 billion, jumping up to 7% from the year before.**[2]**

Then there is the Pakistan Stock Exchange (PSX) in Pakistan is the main stage for trading shares. The stock market is not generally more than just numbers and graphs; rather it is a mirror reflecting the economic health of the country which is watched keenly by the investors and decision-makers. And guess what really shakes things up in the stock market? Yes, economic shifts, the political weather, and how different sectors, like our textile sector, are doing.**[3]**

Speaking of which, the textile sector's performance is important for the PSX. A lot of the heavy hitters in textiles are listed there, and their difficulties can send ripples across the whole stock market, especially when times get tough economically.**[4]**

This thesis? It is all about diving deep into how the textile sector influences the PSX. It is not

just about looking at share prices of textile companies on the PSX;**[5]** it is about understanding how this sector weaves into Pakistan's broader economic tapestry. But there is more. Understanding the textile sector's sway over the PSX is crucial for everyone in the mix – investors, policymakers, the whole shebang. It is not just number crunching; it is unearthing the gears that drive the stock market, seeing how the textile sector propels the economic machine.**[6]**
This study does not aim to be more than just words on paper. It is about laying down hard facts between the textile sector and the PSX. For big players, this is the kind of knowledge that will guide them in making smarter choices. Moreover, this study is a stepping-stone for future research into how different sectors can stir the stock market and the broader economic landscape in Pakistan.**[7]**
In the broader economy of Pakistan, the impact of the textile sector raises intriguing questions about its influence on the stock market. It is crucial for policymakers, investors, and market participants to fully understand the relationship between the textile sector and the PSX, this will help them to make informed decisions as well as help them to capitalize on potential investment opportunities. By examining the relationship, what we can gain is insight into the dynamics of the Stock market and the role of the textile sector as a driving force of economic growth **[8]**.
This study aims to make existing Policymakers, investors, and other stakeholders of the textile industry literate and informed by giving them evidence of the relationship between the textile sector and the Pakistan stock exchange. This study and its findings will be a help for investors and policymakers to make informed decisions be it related to investment and business activities in the textile industry. Furthermore, the core aim of this study is to serve as a basis for future research on the sectoral impact and performance on the stock market and the economy of Pakistan. **[9]**.
Earlier studies have shown and discussed the relationship between the impact of various industries and stock markets in different countries, whereas limited research has been conducted on specifically discussing the impact of the textile sector on the PSX in Pakistan. Hence, the aim of this research is to find the gap in the research and investigate how the performance of the textile sector and fluctuations in the stock market interplay with each other. **[10]**.
The gap in the research is between understanding how the textile sector specifically affects the PSX and to study and shed light on the interplay between textile fluctuations and the stock market in Pakistan.

1.1 The study attempts to achieve the following goals

The objective of the research is to analyze and examine the historical performance and long-term trends of the textile sector in Pakistan, this includes factors such as production ability, market share, export volume, and employment generation. **[11]**.
Analyzing and understanding the trends and fluctuations in the Pakistan Stock Exchange, with market indicators including such as KSE-100 Index, market capitalization, liquidity, and trading volume. **[12]**.
This research work intends to investigate the relationship between the textile sector as well as the performance of the stock market, examining and analyzing whether there are any co-movements and correlations. **[13]**.
The research has assessed key macroeconomic indicators, such as inflation rates, interest rates, exchange rates, and government policies on the textile sector and stock market.
The core objective and aim of this research is to provide recommendations to investors, market participants, and policymakers to help them enhance their investment strategies, risk management, and decision-making.**[14]**.
The final result of this study will make the people of Pakistan more knowledgeable by making them understand the connection between industry sectors and stock markets. Moreover, this research and study will conclude and have practical implications for policymakers and investors, making a clear understanding of the dynamics of the textile sector and its influence on the stock market. **[15]**.

2. Methodology:

2.1 Research Design:

This research has built a link between the Pakistan Stock Exchange (PSX) and the textile sector's performance. The core focus is to find an answer to the question of how the textile sector influences the dependent variable and the performance of the stock exchange. **[16]**.

2.2 Data Type and Analysis:

The research has used statistical methods to explore the connection between numerous factors in the research. For this, the analysis has revolved around the quantitative data. After employing various statistical tools and techniques it has used quantitative analysis to investigate the patterns and relationships between the textile sector and the stock exchange.**[17]**.

2.3 Data Collection:

For this research study, secondary data has been gathered. This includes key information about the textile sector and the stock exchange performance, which is sourced from financial reports, stock market indices, economic indicators, industry publications, and government reports. The mentioned sources are crucial for the analysis of how the textile sector affects the stock exchange, offering a wide range and reliability in the information provided.**[18]**.

2.4 Variables and Instruments:

In this research, the main factors that are analyzed are the performance of the textile sector and the Pakistan Stock Exchange (PSX). Generally, in order to evaluate the performance of the textile sector you analyze financial statements, production data, and export data along with other relevant indicators specific to the sector. Meanwhile, in order to gauge the performance of the stock market we look at market indices, trading volumes, and the trends in price movements.**[19]**.

2.5 Data Analysis:

Descriptive statistical analysis like mean, median, mode, and standard deviation are used to examine the gathered data in order to break down and make suitable trends and variations. The purpose of these techniques is to give us a deeper understanding of how the stock exchange and the textile sector are performing. Moreover, through these techniques correlation analysis to investigate how the stock exchange performance and textile sector are linked. This kind of analysis are key in figuring out how strong and in what way these variables are connected. **[20]**.

2.6 Limitations:

It is important to understand the limitations of our research as well. The first concern is the potential bias in secondary data since the source of the data is from a secured and reliable public source. Lastly, we are assured that the data is correct and complete. What is more, there are outside factors and events that we cannot cover in this study that might affect how the stock exchange does, and we cannot control everything that could play a role.**[21]**.

2.7 Mean:

The mean, a measure of central tendency, is the average value of a set of data. The computation involves dividing the total number of observations by the sum of all values included in the dataset. The mean is vulnerable to extreme values and can be affected by outliers.

2.8 Median:

The median, another measure of central tendency, is the middle value when a dataset is sorted in either ascending or descending order. To find the median, you sort the data and select the value that falls in the middle. When there are an even number of observations, the median is calculated by averaging the two middle values.

2.9 Mode:

The value that appears the most often in a dataset is its mode. Put another way, it is the

observation that happens most often. A dataset may have no mode (no value appears more than once), one mode (unimodal), or numerous modes (multimodal).

2.10 Standard Deviation:

The standard deviation quantifies the spread or dispersion of a dataset. It measures how far each observation deviates from the mean on average. A higher standard deviation shows more data variability, while a smaller standard deviation indicates less data variability.**[22]**.

2.11 Minimum and Maximum:

The smallest and greatest values in a dataset are represented, respectively, by the minimum and maximum values. The highest value that has been seen is the maximum, while the lowest value is the minimum.

2.12 Range:

The difference between a dataset's maximum and minimum values is known as its range. It provides a simple measure of the spread of data by capturing the total extent between the smallest and largest values **[23]**.

2.13 MAPE (Mean Absolute Percentage Error):

The average percentage difference between the predicted and actual numbers is calculated to decide the forecasting accuracy, or MAPE. It is commonly used in evaluating the performance of forecasting models. MAPE = (1/n) * Σ (| (Actual - Forecast)/Actual|) * 100 is the formula for calculating MAPE.

2.14 MAD (Mean Absolute Deviation):

The MAD measure of dispersion yields the average absolute difference between each data point and the mean of the collection. It provides a sign of the average deviation of data points from the mean. The formula for MAD is MAD = (1/n) * Σ (|Data point - Mean|)

2.15 MSD (Mean Squared Deviation):

The average squared difference between each data point and the dataset mean is decided by the MSD, a measure of dispersion. It shows the degree to which the data points deviate from the mean. The formula for MSD is MSD = (1/n) * Σ ((Data point - Mean) ^2)

3. Results and Discussion

Company A: The variable COMPANY A has a mean value of 102.86 with a standard error of 1.21. The data is moderately dispersed, showed by the standard deviation of 18.87 and the coefficient of variation of 18.35%. There is a range of 87.24, with the least value being 55.25 and the largest value being 142.49. The data's mode is 92.

Company B: For the variable COMPANY B, the mean value is 28.996, and the standard error is 0.349. The data has a small standard deviation of 5.478 and a coefficient of variation of 18.89%. The minimum and maximum values are 17.150 and 39.100, respectively, yielding a range of 21.950. The data's mode is 32.

Company C: The variable COMPANY C has a mean value of 105.19 with a standard error of 0.544. A moderate spread in the data is shown by a coefficient of variation of 7.66% and a standard deviation of 8.06. The minimum and maximum values are 90.01 and 131.01, respectively, resulting in a range of 41.00. The data's mode is 100.

Company D: COMPANY D has a mean value of 47.615 and a standard error of 0.513. With a coefficient of variation of 16.91% and a standard deviation of 8.054, the data show a moderate degree of dispersion. The minimum and maximum values are 32.740 and 61.600, respectively, resulting in a range of 28.860. The data has two modes at 37.5 and 50.

Company E: The variable COMPANY E has a mean value of 69.963 and a standard error of 0.322. The data has a 7.22% coefficient of variation and a comparatively low standard deviation of 5.053. The minimum and maximum values are 55.100 and 77.500, respectively, resulting in a range of 22. 400.The mode of the data is 74.

Company F: COMPANY F has a mean value of 71.227 with a standard error of 0.617. At a coefficient of variation of 13.53% and a standard deviation of 9.640, the data show a comparatively higher degree of dispersion. The minimum and maximum values are 52.500 and 92.810, respectively, resulting in a range of 40.310. The mode of the data is 78.

Company G: The variable COMPANY G has a mean value of 57.466 and a standard error of 0.456. With a coefficient of variation of 10.71% and a standard deviation of 6.153, the data shows a moderate degree of dispersion. The minimum and maximum values are 44.100 and 79.750, respectively, resulting in a range of 35.650. 56 is the data's mode.

Company H: COMPANY H has a mean value of 100.25 with a standard error of 0.580. With a standard deviation of 9.10 and a coefficient of variation of 9.08%, the data show a moderate spread. The minimum and maximum values are 83.90 and 124.89, respectively, resulting in a range of 40.99. The data's mode is 90.

Variable	N	Mean	Median	Mode	StDev	Variance	CoefVar	Minimum	Maximum	Range
COMPANY A	228	69.813	69.5	59	69.5	110.807	15.08	54.3	92.57	38.57
COMPANY B	249	12.919	12.42	11.2	12.42	6.283	19.40	9.730	22.18	12.45
COMPANY C	198	72.639	69.99	67	69.99	98.291	13.65	60.0	105.55	45.55
COMPANY D	249	42.757	44.9	45,	44.9	51.913	16.85	29.85	56.0	26.15
COMPANY E	249	70.698	72.48	74	72.48	29.080	7.63	59.4	84.45	25.05
COMPANY F	226	61.330	61.755	62	61.755	51.33	12.11	47.66	78.26	30.60
COMPANY G	141	47.259	48.48	45	48.48	45.807	14.32	0.0	60.95	60.95
COMPANY H	249	81.014	81.50	81.5	81.50	52.572	8.95	67.34	98.96	31.62

Table 1 High Stock exchange market index time series data

Based on these Table 1, the companies that are more stable across different variables are COMPANY H and COMPANY E. It is important to note that stability can be evaluated from various perspectives, and additional factors or criteria may be considered for a comprehensive assessment.

Variable	N	Mean	Median	Mode	StDev	Variance	CoefVar	Minimum	Maximum	Range
COMPANY A	228	68.051	67.370	57	10.478	109.789	15.40	52.300	87.310	35.010
COMPANY B	249	12.329	11.750	10.4	2.294	5.263	18.61	9.160	20.060	20.060
COMPANY C	219	102.25	99.16	98	7.57	57.34	7.41	87.61	126.10	126.10
COMPANY D	249	41.435	43.500	45	6.983	48.765	16.85	28.800	54.020	54.020
COMPANY E	249	68.616	70.000	61	5.528	30.562	8.06	57.750	79.250	79.250
COMPANY F	226	59.194	59.835	51	7.223	52.165	12.20	46.200	76.800	76.800
COMPANY H	141	45.616	46.000	44	6.638	44.059	14.55	0.000	56.310	56.310
COMPANY H	249	78.515	79.000	73	6.955	48.375	8.86	65.000	94.510	94.510

Table 2 Low Stock exchange market index time series data

Based on these table 2, the company COMPANY A (Company A) appears to have higher volatility and lower stability compared to other companies. Companies such as COMPANY C (Fazal Cloth Mills), COMPANY E (Company E), and COMPANY H (Company H) show better stability across the variables.

4. Trend Analysis

Variables	COMPANY A			COMPANY B			COMPANY C		
Model Types	MAPE	MAD	MSD	MAPE	MAD	MSD	MAPE	MAD	MSD
Linear	14.475	11.788	253.741	21.8726	4.4175	31.9977	5.4034	5.6822	55.6396
Quadratic	14.198	11.554	211.284	25.4186	4.4534	26.0404	5.3815	5.6577	55.1729

Exponential Growth	14.716	12.213	271.463	20.5468	4.5375	40.0427	5.3139	5.6049	55.7159

Table 3 Trend Analysis of textile companies

Variables	**COMPANY D**			**COMPANY E**			**COMPANY F**		
Model Types	**MAPE**	**MAD**	**MSD**	**MAPE**	**MAD**	**MSD**	**MAPE**	**MAD**	**MSD**
Linear	15.5376	6.3266	54.5035	6.9844	4.6511	28.8983	11.9759	7.5806	83.99
Quadratic	6.5036	2.7030	11.0438	4.5830	3.0662	13.8338	7.7686	4.9714	36.64
Exponential Growth	15.6725	6.4881	55.5077	7.0050	4.6802	28.9484	11.8788	7.5969	85.62

Table 4 Trend Analysis of textile companies

Model Types	**MAPE**	**MAD**	**MSD**
Linear	7.7875	4.3189	40.0966
Quadratic	7.7412	4.2620	39.1240
Exponential Growth	11.8788	7.5969	Some data are non-positive; cannot fit the growth model

Table 9 Trends Analysis for COMPANY H

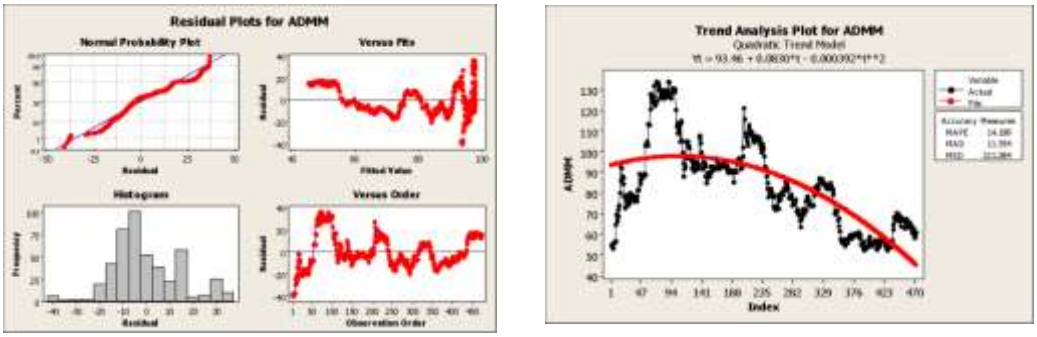


Figure 1 Residual and Quadratic Plot for COMPANY A

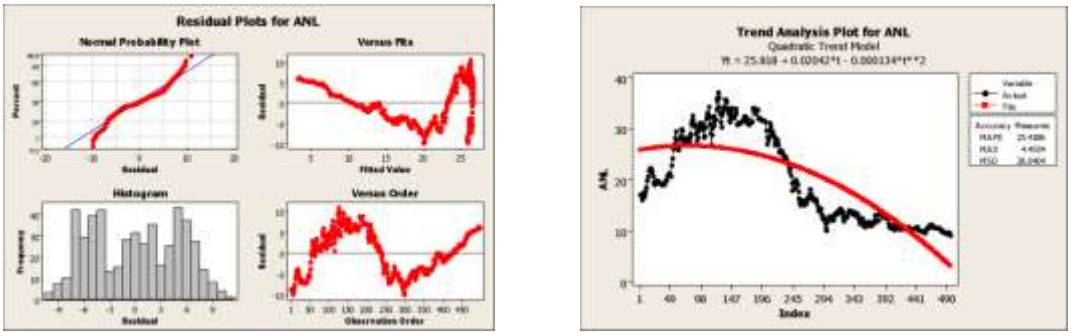


Figure 2 Residual and Quadratic Plot for COMPANY B

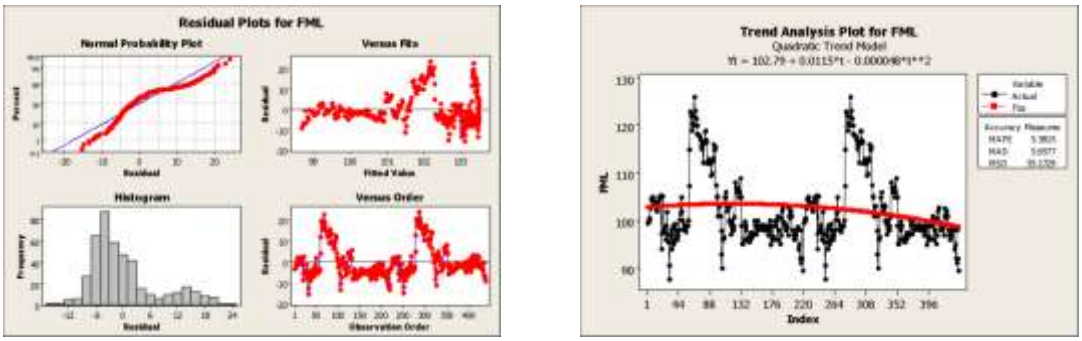


Figure 3 Residual and Quadratic Plot for COMPANY C

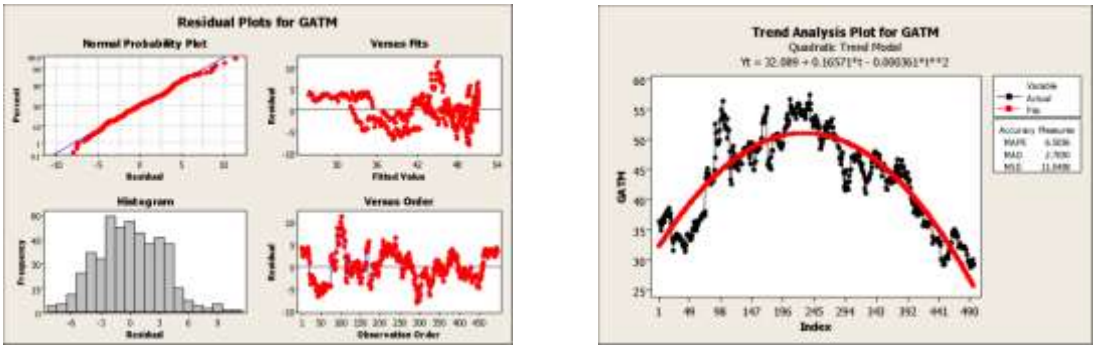


Figure 4 Residual and Quadratic Plot for COMPANY D

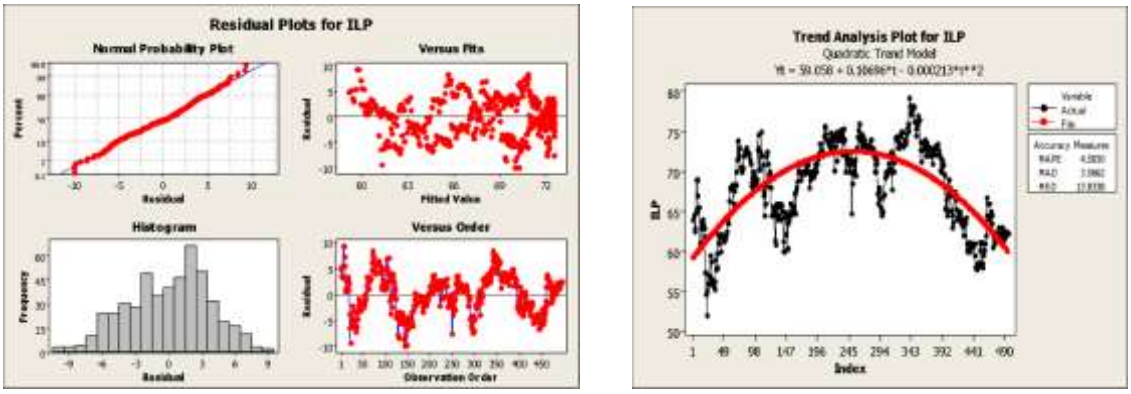


Figure 5 Residual and Quadratic Plot for COMPANY E

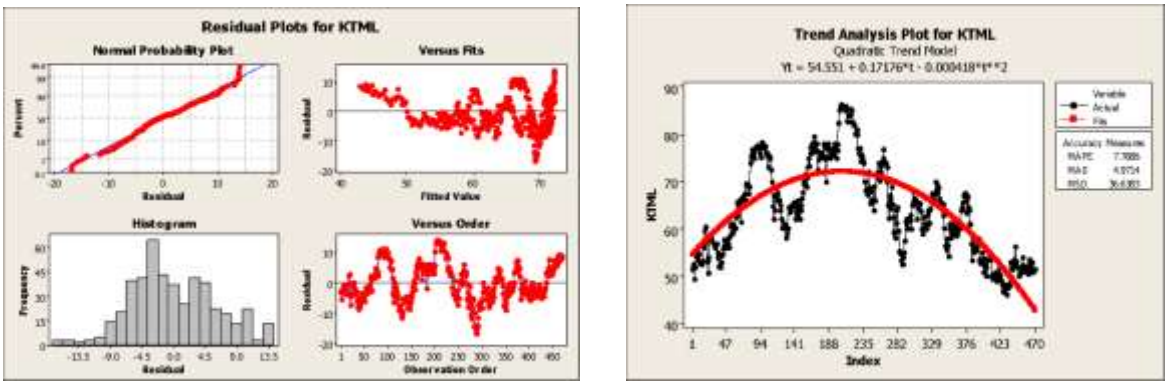
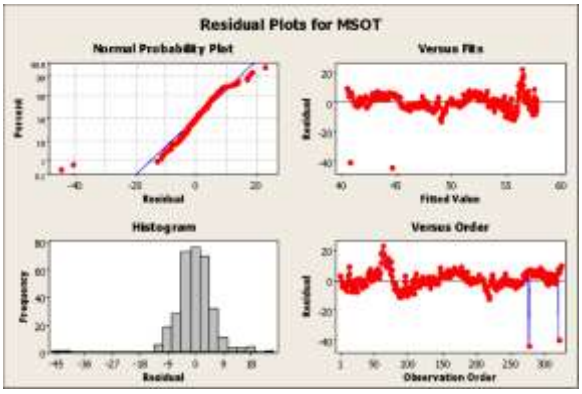


Figure 6 Residual and Quadratic Plot for COMPANY F



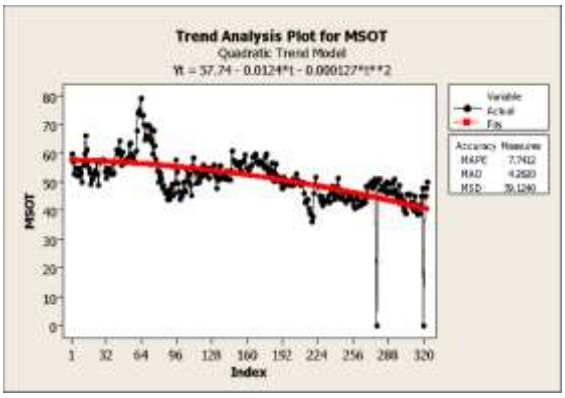


Figure 7 Residual and Quadratic Plot for COMPANY H

5. Conclusion

When considering the trend analysis for the companies, different models were evaluated for their suitability. The quadratic model appeared to be the most proper for Company A, Company Ds, Company E, Company F, and Company H, as it yielded the lowest values for metrics such as MAPE, MAD, and MSD. However, for Company C, Company G, and Company H, the models showed similar performance across the linear, quadratic, and exponential growth options.

Based on the stability analysis, Company C, Company G, and Company H were identified as showing better stability compared to others. However, when considering both stability and trend analysis, it can be concluded that Company C, with its high median value, and Company H, with stable mode values, proved consistent performance and were well-suited for the quadratic trend model. Additionally, Company G showed better stability with the highest minimum value and a suitable linear trend model.

Acknowledgment:

We would like to express our gratitude to the Pakistan Stock Exchange (PSX) for providing us with the data used in this analysis. Their contribution has been invaluable in helping us evaluate and compare the performance of different models. We appreciate their support and cooperation throughout this process.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used WriterBuddy in order to improve the style and structure of the content to give it a professional touch. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Hence we would like to conclude that in the case where the AI technology "Writerbuddy" was used, it was done only in order to improve the readability and language of the manuscript.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

No funding was received for conducting this study.

Conflict of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.