EXPLORING THE RELATIONSHIP BETWEEN THE FDI GROWTH AND NIFTY ENERGY INDEX RETURNS ON INDIAN ENERGY SECTOR

An Internship Report

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MBA IN FINANCIAL SERVICES

by

CHAITAN PURUSHOTTAM GAWDE

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Under the Supervision of

DR. PINKY PAWASKAR
Assistant Professor

Goa Business School
MBA in Financial Services

GOA UNIVERSITY
GOA BUSINESS SCHOOL

Date: April 2024

Seal of the School

DECLARATION BY STUDENT

I hereby declare that the data presented in this Internship report entitled, "Exploring the Relationship between FDI Growth and Nifty Energy Index Returns in Indian Energy Sector" is based on the results of investigations carried out by me in the MBA in Financial Services at the Goa Business School, Goa University under the Supervision of Dr. Pinky Pawaskar and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities/College will be not be responsible for the correctness of observations/experimental or other findings given the dissertation.

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Chaitan Purushottam Gawde
Roll no.02

Date: April 2024
Place:Goa Business School, Goa University

COMPLETION CERTIFICATE

This is to certify that the Internship report Exploring "The Relationship Between FDI Growth And Nifty Energy Index Returns in Indian Energy Sector" is a bonafide work carried out by Mr Chaitan Purushottam Gawde under my supervision in partial fulfilment of the requirements for the award of the degree of MBA in the Discipline Financial Services at the Goa Business School, Goa University.

DR. PINKY PAWASKAR
Assistant Professor
MBA (financial Services)
Goa Business School
Goa University
Date: April 2024

Prof. Jyoti Pawar
Dean of the School
Goa Business School
Date: April 2024
Place: Goa University

Goa Business School
Goa University

School Stamp

moneywise. be wise.

INTERNSHIP CERTIFICATE

This is to certify that Mr. Chaitan Purushottam Gawde. Student of the Goa Business School, undergoing Master of Business administration in Financial Services has successfully completed Internship between 15th Feb to 12th April at SMC Global Securities Limited. He actively participated in the activities during the period of internship and learned the skills needed for various activities such as Data handling operational work.

ADRISH KILANIYA
Area Manager
SMC GLOBAL SECURITIES LTD.

Place: Panaji
Date: 11/04/2024

SMC GLOBAL SECURITIES LTD. PANJIM GOA

SMC GLOBAL SECURITIES LIMITED
Office No.417, 4th Floor, Gera's Imperium II,
Patto Panaji, Goa - 403001
Tel : +91-832-2912924 / 925
www.smcindiaonline.com

PROFILE OF THE ORGANISATION

SMC Global Securities Ltd.

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presence in 440+ cities across India and abroad.
boasts a large network of 2,400+ sub-brokers and authorized persons.
manages a cumulative AUM (assets under management) of around 3,000 crores in mutual funds.
provides clearing settlement services to 300+ trading members.

Promoters:

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Mr. Subhash Chand Aggarwal
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Ms. Sushma Gupta
Mr. Damodar Krishan Aggarwal

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Exploring The Relationship Between FDI Inflows And Nifty Energy Index Returns On Indian Energy Sector

Contents

Keyword: FDI Growth, Nifty Energy Returns

Abstract:

This study investigates the relationship between Foreign Direct Investment (FDI) inflows and the returns of the Nifty Energy Index within Indian energy sector from 2013 to 2022. Using historical and statistical analysis, we aim to find the implications of this relationship for investment strategies, policy-making, and business operations. The literature review highlights the importance of understanding these dynamics and identifies a gap in research regarding the FDI Nifty Energy Index relationship. Data sourced from CMIE economic Outlook and the NSE website are analyzed using regression models to assess any significant relationship between the variables. Initial findings indicate a lack of significance, prompting further investigation by incorporating additional variables such as oil prices, inflation, and GDP growth. This study aims to contribute to a deeper understanding of the factors influencing investment trends within the Indian energy sector, helping stakeholders in making informed decisions.

INTRODUCTION

The Relationship between sectoral indices and foreign direct investment (FDI) is crucial for understanding global economic dynamics. This paper aims to explore the complex connection between FDI and Nifty Energy Index returns and its implications for investment strategies and economic policies. The energy industry plays a vital role in driving economic growth, job creation, and technological advancements worldwide. Changes in energy markets influence corporate strategies, government policies, and investor confidence globally.Simultaneously, FDI flows represent a significant option for capital movement across borders, seeking development, diversification, and strategic expansion opportunities.

The Nifty Energy Index, which tracks the performance of energy-related companies listed on the National Stock Exchange of India (NSE), summaries the overall performance of this important sector. It reflects the combined performance of businesses involved in electricity generation, renewable energy, oil and gas exploration, and related operations, providing insights into market sentiments, industry developments, and investment opportunities. Understanding the relationship between FDI and Nifty Energy Index results is essential. FDI inflows influence infrastructure development, technological innovation, and industry competitiveness within the energy sector. Conversely, the performance of the Nifty Energy Index serves as a barometer of investor confidence, regulatory stability, and growth potential, potentially driving FDI patterns. The purpose of this research is to conduct a thorough investigation of the relationship between FDI and Nifty Energy Index returns using empirical data, statistical methods, and theoretical frameworks. By finding out the complex relationships between these variables, the study aims to enhance understanding of investment mechanisms within the energy sector and their broader financial effects.

1.1 Statement of the Problem and Possible Solutions:

While existing literature has explored the relationship between FDI and stock market indices, including the Nifty Energy Index, a significant gap exists in understanding the a level of complexity or depth that requires careful consideration of dynamics of this relationship, particularly concerning the Indian energy sector. Limited attention has been given to the specific mechanisms through which FDI inflows influence Nifty Energy Index returns, alongside institutional factors and sectoral dynamics. Addressing this research gap can provide valuable insights for investors, policymakers, and businesses navigating the complexities of the Indian energy market. By conducting an in-depth study, including sector-specific analyses and historical trends, this research aims to bridge this gap and offer insights into factors influencing investments in the energy industry and their implications for economic growth and development.

1.2 Aims and Objectives of the Paper:

The primary aim of this research is to wider our understanding of the relationship between FDI inflows and Nifty Energy Index returns in the Indian energy sector.

The research seeks to assess the implications of this relationship for investment strategies, policy formulations, and business operations within the Indian energy sector.

Research questions:

What is the nature of the relationship between FDI inflows and Nifty Energy index returns in the Indian energy sector?

How do institutional factors and sectoral dynamics influence the relationship between FDI and Nifty Energy Index returns?

What are the implications of the identified relationship for investment strategies, policy formulations, and business operations in the Indian energy sector?

1.3 Overview of the Approach and Outline of the Study

This research will adopt an empirical approach, utilizing statistical methods and theoretical frameworks to analyze the relationship between FDI inflows and Nifty Energy Index returns. It will encompass sector-specific studies and historical trends to provide a comprehensive understanding of the factors driving investment patterns and market performance in the Indian energy sector. The findings of this study will contribute to informed decision-making by stakeholders in the energy industry and beyond.

LITERATURE REVIEW

The relationship between Foreign Direct Investment (FDI) and stock market indices has drawn a lot of attention from economists, policymakers, and investors in an era defined by globalization and interconnected financial markets. The Nifty Energy Index is a significant indicator of the performance of the energy sector in the Indian stock market among various indices.

India's rise to importance in the world economy has attracted significant foreign investment, especially in industries like energy that are essential to the country's growth and advancement. In light of this, it is important for stakeholders attempting to negotiate the complexity of the Indian market to comprehend the complicated relationships between FDI inflows and the performance of the Nifty Energy Index.

The objective of the paper is to examine and assess the relationship that exists between foreign direct investment (FDI) and the Nifty Energy Index. The study seeks to provide light on any potential inter-dependencies, causal relationships, and underlying processes that may regulate these interactions. Examining this link, the study aims to add to the body of knowledge already available on the factors that affect stock market performance and how foreign investment shapes sector-specific indices.

This study is important because of what it means for investors, decision-makers, and businesses that are involved in the energy industry. Stakeholders may support sustained growth and stability in the Indian energy sector by making informed judgments about investment plans, policy formulation, and business operations by understanding the complexity of how FDI flows affect the Nifty Energy Index.

The literature review provides insights into the relationship between FDI and the Nifty Energy Index by drawing on important results from previous research. Numerous studies have emphasized the complex effects of foreign direct investment (FDI) inflows on patterns of energy consumption and stock market performance, providing important new perspectives on the processes at work.

The various impacts of FDI on energy consumption, showing a rise in renewable energy consumption but a decrease in non-renewable sources. (Doytch & Narayan, 2016) The importance it is to distinguish economic growth from renewable energy in order to reduce emissions of greenhouse gases and improve efforts to fight climate change.

How institutional factors affect FDI inflows into the energy sector, emphasizing the importance of rules and regulations in attracting foreign investment. (Mahbub et al., 2022)

In addition, the significance of adopting renewable energy into energy portfolios for the preservation of the environment is highlighted by the potential for renewable energy use to lower CO2 emissions in developing nations like Pakistan. (Naz et al., 2019)

Governments and investors hoping to increase investment in renewables can benefit greatly from the insights from research this research paper which has shown a bidirectional causal relationship between FDI and green energy use in Bangladesh.(Khandker et al., 2018)

(Roy, 2024) This Paper has examined the long-term effects of FDI on environmental sustainability in the energy sector. According to their research, FDI promotes the utilization of renewable energy technology while significantly decreasing the ecological influence. This shows that foreign direct investment (FDI) could be a key driver of environmentally friendly practices in the energy sector and could positively impact the returns on the Nifty Energy Index by boosting the development of sustainable energy sources.

As FDI has different effects on economic growth in different sectors, it is crucial to understand sectoral dynamics when evaluating how FDI would affect returns on the Nifty Energy Index.

(Osano & Koine, 2015) expanded the investigation of sectoral dynamics by looking at the effect of FDI on economic growth in a sector-specific manner. According to their research, FDI has varying effects on economic growth depending on the industry, therefore it's important to take an in-depth approach when examining how it may affect the returns on the Nifty Energy Index. Gaining understanding of sectoral dynamics can help one understand how foreign direct investment (FDI) influences the energy sector's performance and how it is represented in the Nifty Energy Index.

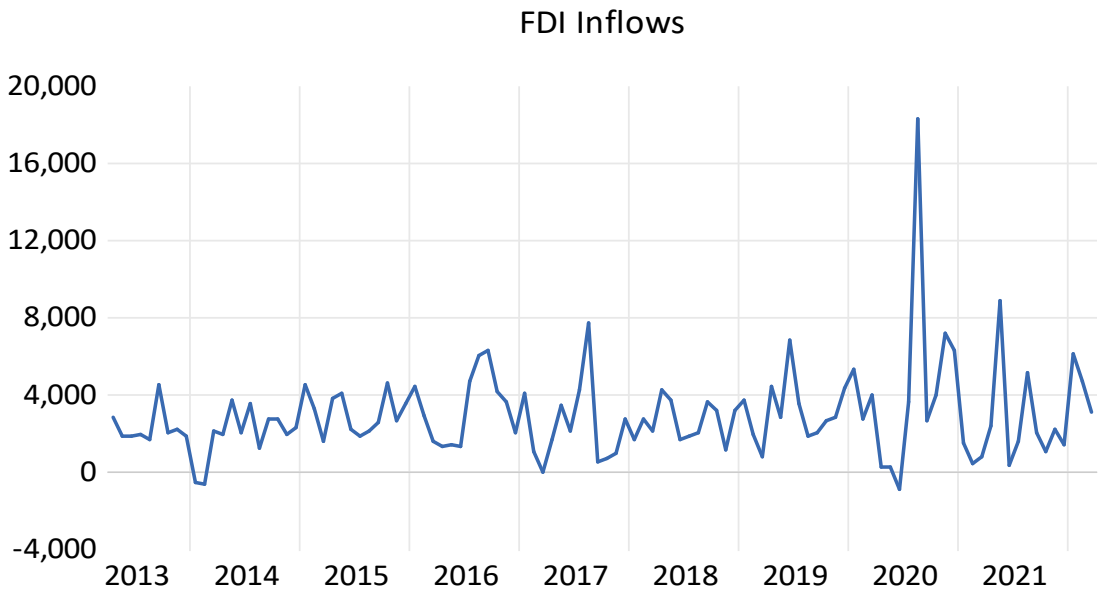
To clarify the complex connection between FDI and the Nifty Energy Index, the literature review summarizes the main findings from relevant research. This study lays the foundation for a thorough examination of the variables affecting stock market performance in light of the dynamics of foreign investment in the Indian energy sector by combining observations from several research projects.

METHODOLOGY

The research methodology employed in this study involves collecting data on foreign direct investment (FDI) inflows into India's energy sector and the returns of the Nifty Energy Index from 2013 to 2022, using sources such as the CMIE Economic Outlook database and the National Stock Exchange (NSE) website. This data is then cleaned using the excel and aggregated for analysis by putting it into E views . Descriptive statistics are computed to understand the datas characteristics, followed by unit root tests to assess stationarity. Regression analysis is conducted to explore the relationship between FDI inflows and Nifty Energy Index returns, with additional statistical tests to validate the results. Finally, the findings are interpreted to draw conclusions and provide insights for stakeholders in the energy sector.

DATA ANALYSIS & CONCLUSIONS

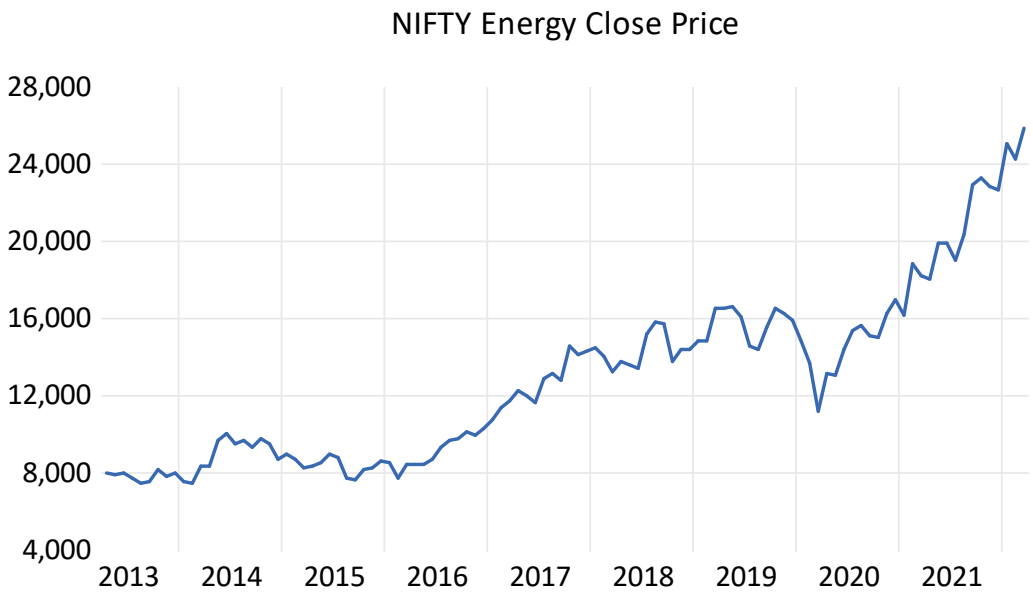
Figure no.1



Extracted from: E Views

Source: CMIE Economic Outlook

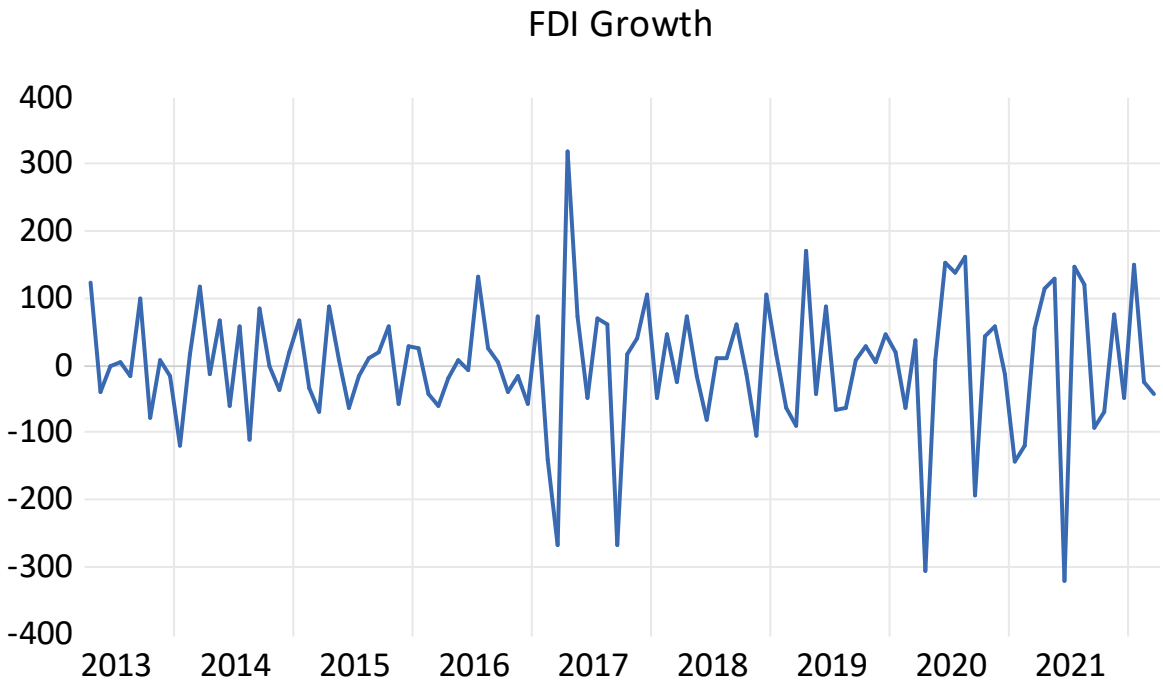
Figure no.2



Extracted from: E Views

Source: NSE website

Figure no.3



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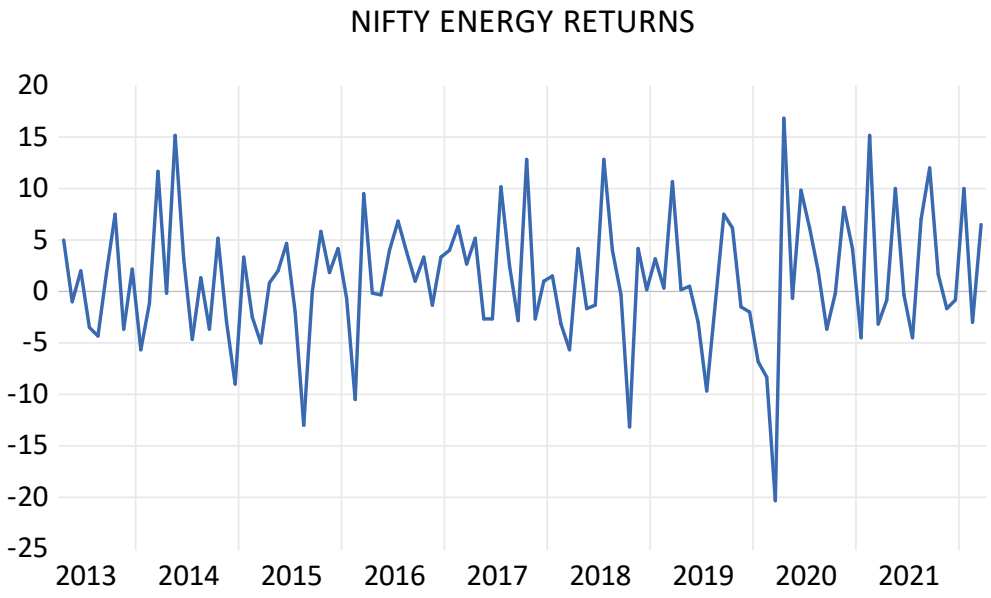
Source: NSE website

Figure no.4



Extracted from: EVIEW

Table no.1: Summary Statistics

	NIFTY ENERGY
Mean	1.138408
Median	0.589272
Maximum	16.76607
Minimum	-20.46944
Std. deviation	6.184011
Skewness	-0.121802
Kurtosis	3.997322
Jarque Bera	4.74297
Probability	0.093342
Sum	122.9481
Sum Sq. Dev.	4091.894
Observations	108

Extracted from: E Views

The study utilizes Summary Statistics to understand the nature of the data. The Summary Statistics include Mean which is a measure of performance, Standard Deviation which signifies the variations, Measures of Normality such as Skewness to know the symmetry of the data, and Kurtosis to examine the flatness of data. If the data is found to be normally distributed, the study will use the logarithmic for the data for further analysis purposes. Summary Statistics is used to know the descriptive summary of daily changes in the stock prices or index. Mean is (1.138408). Mean shows Average daily changes in the price. Here it is positive so there is overall upward trend over the observed period. Median is (0.589272) half day changes in the prices. It is greater here 0.589%. Standard deviation is (6.184011) Standard Deviation shows the daily fluctuations in the price. The price movement can fluctuate substantially from the average change. Maximum is (16.76607). it shows largest single daily increase. And minimum(-20.46944) shows largest single day decrease. Skewness(-0.121802) which shows negative skew, which suggest that the longer tail towards daily changes compared to higher one.value is close to zero so it is almost symmetrical distribution. Kurtosis is (3.997322) a value is slightly higher than 3 which shows it is normal distribution, it suggest fatter tails which means more frequent days with larger price changes.

The positive mean suggests an overall positive trend, the high standard deviation Indicates significant daily price movement, reflecting volatility in the market.
The presence of both large positive and negative daily changes highlights the potential for the substantial fluctuations in the index or stock price.

Table no.2: Unit Root Test (NIFTY ENERGY RETURNS)

Null Hypothesis: D(NIFTY ENERGY RETURNS) has a unit root
Exogenous: Constant
Lag Length: 6 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.513216	0.0000
Test critical values:	1% level	-3.497029	
	5% level	-2.890623	
	10% level	-2.582353	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(NIFTY ENERGY RETURNS,2)
Method: Least Squares
Date: 04/25/24 Time: 08:13
Sample (adjusted): 2013M12 2022M03
Included observations: 100 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NIFTY ENERGY RETURNS(-1))	-6.339448	0.744660	-8.513216	0.0000
D(NIFTY ENERGY RETURNS(-1),2)	4.309314	0.681697	6.321452	0.0000
D(NIFTY ENERGY RETURNS(-2),2)	3.320038	0.579723	5.726940	0.0000
D(NIFTY ENERGY RETURNS(-3),2)	2.480914	0.463715	5.350080	0.0000
D(NIFTY ENERGY RETURNS(-4),2)	1.649826	0.345163	4.779842	0.0000
D(NIFTY ENERGY RETURNS(-5),2)	0.845544	0.219921	3.844758	0.0002
D(NIFTY ENERGY RETURNS(-6),2)	0.274870	0.101623	2.704806	0.0081
C	0.195584	0.647854	0.301895	0.7634

R-squared	0.850507	Mean dependent var	0.208546
Adjusted R-squared	0.839133	S.D. dependent var	16.13831
S.E. of regression	6.472790	Akaike info criterion	6.649710
Sum squared resid	3854.525	Schwarz criterion	6.858124
Log likelihood	-324.4855	Hannan-Quinn criter.	6.734059
F-statistic	74.77355	Durbin-Watson stat	2.041083
Prob(F-statistic)	0.000000		

Extracted from: E Views

Table no.3: Unit Root Test (FDI Growth)

Null Hypothesis: D(FDI GROWTH) has a unit root
Exogenous: Constant
Lag Length: 9 (Automatic - based on SIC, maxlag=12)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.685410	0.0000
Test critical values:	1% level	-3.499167	
	5% level	-2.891550	
	10% level	-2.582846	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FDI GROWTH,2)
Method: Least Squares
Date: 04/25/24 Time: 08:18
Sample (adjusted): 2014M03 2022M03
Included observations: 97 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI GROWTH(-1))	-13.39095	1.742386	-7.685410	0.0000
D(FDI GROWTH(-1),2)	11.09295	1.674806	6.623425	0.0000
D(FDI GROWTH(-2),2)	9.479747	1.542082	6.147370	0.0000
D(FDI GROWTH(-3),2)	7.778718	1.361541	5.713173	0.0000
D(FDI GROWTH(-4),2)	6.145951	1.147886	5.354147	0.0000
D(FDI GROWTH(-5),2)	4.537763	0.919299	4.936113	0.0000
D(FDI GROWTH(-6),2)	3.103931	0.685811	4.525930	0.0000
D(FDI GROWTH(-7),2)	1.793813	0.462294	3.880246	0.0002
D(FDI GROWTH(-8),2)	0.760026	0.264594	2.872419	0.0051
D(FDI GROWTH(-9),2)	0.239257	0.110563	2.163991	0.0332
C	2.763547	9.500689	0.290879	0.7718

R-squared	0.891374	Mean dependent var	-1.583238
Adjusted R-squared	0.878743	S.D. dependent var	268.5391
S.E. of regression	93.51061	Akaike info criterion	12.02047
Sum squared resid	752004.1	Schwarz criterion	12.31244
Log likelihood	-571.9927	Hannan-Quinn criter.	12.13853
F-statistic	70.57068	Durbin-Watson stat	2.051117
Prob(F-statistic)	0.000000		

Extracted from: E Views

The unit root test is used to know whether there is trend or lacks stationary. If P-Value is lower than the significance level then the hypothesis is rejected. Here P-Value is 0.0000. so the P-Value is lower than the significance 0.05 so hypothesis should be rejected. The more small value means more stronger rejection. Nifty energy returns and FDI growth does not have a unit root meaning the series exhibits the stationary of data So Nifty energy return and FDI growth the unit root test is rejected.

Table no.4: Regression Analysis

Dependent Variable: NIFTY ENERGY RETURNS
Method: Least Squares
Date: 04/25/24 Time: 08:20
Sample: 2013M04 2022M03
Included observations: 108

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.133906	0.596872	1.899747	0.0602
FDI GROWTH	0.003707	0.006121	0.605512	0.5461

R-squared	0.003447	Mean dependent var	1.138408
Adjusted R-squared	-0.005954	S.D. dependent var	6.184011
S.E. of regression	6.202395	Akaike info criterion	6.506093
Sum squared resid	4077.789	Schwarz criterion	6.555762
Log likelihood	-349.3290	Hannan-Quinn criter.	6.526232
F-statistic	0.366645	Durbin-Watson stat	2.163097
Prob(F-statistic)	0.546133		

Extracted from: E Views

In the Regression test P-Value is 0.366645 for the nifty energy, which is higher in these situation,where the preferable P-Value less than 0.05 at 5% significance level. For the FDI Growth coefficient is 0.003707 which is very small and statistically insignificant (t-statistics of 0.605512) with the higher P-Value. It suggest that FDI Growth is not strong explanatory variable for the nifty energy returns.

Other variable taken into the consideration like R squared (0.003447) and adjusted R Squared these are also very low indicating very tiny variations of nifty energy returns.

Table no.5: Heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	1.182896	Prob. F(1,106)	0.2792
Obs*R-squared	1.191914	Prob. Chi-Square(1)	0.2749
Scaled explained SS	1.810555	Prob. Chi-Square(1)	0.1784

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/25/24 Time: 16:09
Sample: 2013M04 2022M03
Included observations: 108

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	37.84506	6.477215	5.842799	0.0000
FDI GROWTH	-0.072249	0.066429	-1.087610	0.2792

R-squared	0.011036	Mean dependent var	37.75731
Adjusted R-squared	0.001706	S.D. dependent var	67.36547
S.E. of regression	67.30797	Akaike info criterion	11.27478
Sum squared resid	480218.4	Schwarz criterion	11.32445
Log likelihood	-606.8381	Hannan-Quinn criter.	11.29492
F-statistic	1.182896	Durbin-Watson stat	1.728076
Prob(F-statistic)	0.279234		

Extracted from: E Views

Heteroskedasticity Test is used to see that the data is constant variance. F statistic 1.182896 and prob(F statistics 0.0792). The P-Value is 0.2792 is greater than 0.05. so if the P value is greater than 0.05 the hypothesis should be accepted. Here P-Value is greater so the hypothesis should be accepted.

Interpretation:

Chart Analysis:

Figure 1: shows a positive trend in FDI inflows in India from 2013 to 2022, with a notable increase during the COVID-19 pandemic in 2020.

Figure 2: shows an uptrend in the closing prices of the Nifty Energy Index, with a slight fall in 2020 due to the pandemic but subsequent recovery.

Figure 3 shows stable FDI growth from 2013 to 2016, followed by fluctuations and a return to stability, with a notable increase in 2017.

Figure 4: shows significant fluctuations in Nifty Energy Index returns over the observed period, including a notable dip in 2020 during the pandemic.

Summary Statistics (Table 1): The mean of Nifty Energy returns suggests an overall positive trend, while the high standard deviation indicates significant daily price fluctuations, reflecting market volatility. The presence of both large positive and negative daily changes shows the potential for substantial fluctuations in the index or stock price.

Unit Root Test (Tables 2 and 3): Both Nifty Energy returns and FDI growth reject the unit root hypothesis, indicating that the series exhibits stationarity. This implies that there is a trend present in the data rather than randomness.

Regression Analysis (Table 4): The regression analysis suggests that FDI growth is not a strong explanatory variable for Nifty Energy returns, as indicated by the statistically insignificant coefficient and low R-squared values. - Other variables may have a more significant impact on Nifty Energy returns.

Heteroskedasticity Test (Table 5): The Heteroskedasticity test results indicate that the data exhibits constant variance, as the hypothesis of constant variance is accepted.

Overall, the analysis provides insights into the trends and relationships between FDI inflows, Nifty Energy Index returns, and other relevant variables. While FDI inflows

and Nifty Energy Index returns show positive trends over time, their relationship may not be straightforward, and other factors likely influence energy sector performance.
The study finds that FDI growth has a stationary behavior, its relationship with Nifty energy index returns is not statistically significant. So there is no significant relationship between FDI growth and the Nifty Energy index return. By including additional variables like oil price, inflation, interest rate, etc., may have some significant effects. So the further study, by taking into consideration other variables, could enhance the understanding of the relationship between FDI and Nifty Energy Index returns.

Findings:

The analysis of the collected data reveals several important trends and relationships within the Indian energy sector and its interaction with foreign direct investment (FDI) and market indices. Here are some key findings and interpretations:

Summary Statistics: FDI and Nifty Energy Index Trends

Summary Statistics: The data shows a positive trend in FDI inflows into India from 2013 to 2022, with a notable increase during the COVID-19 pandemic in 2020. This suggests that India remains an attractive destination for foreign investment, even during times of global economic uncertainty. Similarly, the Nifty Energy Index demonstrates an overall uptrend in closing prices, indicating positive investor sentiment towards the energy sector. Despite a temporary fall in prices during the pandemic, the index has shown resilience and recovered swiftly.

Summary Statistics:FDI Growth and Nifty Energy Index Returns

Summary Statistics: While FDI growth exhibits fluctuations over the observed period, there is no clear correlation between FDI inflows and Nifty Energy Index returns. The regression analysis suggests that FDI growth is not a strong explanatory variable for the returns of the Nifty Energy Index. This implies that other factors, such as domestic energy policies, global energy market trends, and geopolitical factors, may have a more significant impact on the performance of the energy sector and the Nifty Energy Index.

Market Volatility and Risk:

The significant fluctuations in Nifty Energy Index returns highlight the volatility and risk inherent in the energy sector. Despite overall positive trends, investors must be aware of the potential for substantial price movements and adjust their investment strategies accordingly. The high standard deviation in daily price changes further underscores the need for risk management and diversification within energy sector investments.

Summary Statistics: Stationarity and Model Validity

Summary Statistics: The unit root tests indicate that both Nifty Energy returns and FDI growth series exhibit stationarity, implying the presence of underlying trends rather than randomness in the data. This validates the use of time-series analysis and regression models for studying the relationship between FDI and Nifty Energy Index returns. - However, the regression analysis results suggest that the model may not fully capture the complex dynamics of the energy sector, indicating the need for further research and refinement of the analytical framework. Solution to the

Envisioned Problem: Based on the findings and interpretations of the data analysis, the following solutions to address the envisaged problem of understanding the relationship between FDI inflows and Nifty Energy Index returns in the Indian energy sector:

Comprehensive Analysis Summary Statistics:

Conduct a comprehensive analysis that incorporates additional variables such as oil prices, government energy policies, technological advancements, and geopolitical factors to better understand the drivers of Nifty Energy Index returns. Explore sector-specific studies and historical trends to gain deeper insights into the factors influencing FDI inflows into the energy sector and their impact on market performance.

Policy Implications: Provide policymakers with evidence-based insights into the factors driving investment patterns and market performance in the Indian energy sector. Suggest policy interventions that promote a conducive investment environment,

encourage technological innovation, and foster sustainable growth in the energy sector.

Investment Strategies:

Offer investors actionable recommendations for optimizing their investment strategies in the energy sector, taking into account market volatility, risk management, and long-term growth prospects. Advocate for diversified investment portfolios that balance exposure to the energy sector with other asset classes to mitigate risk and enhance returns. In conclusion, by addressing the limitations of existing research and leveraging the insights gained from the analysis of the collected data, the proposed solutions aim to advance our understanding of the relationship between FDI inflows and Nifty Energy Index returns in the Indian energy sector and inform decision-making by stakeholders across the industry.

Conclusion:

The analysis conducted in this study sheds light on the relationship between Foreign Direct Investment (FDI) inflows and the returns of the Nifty Energy Index in India's energy sector from 2013 to 2022. Over this period, it has been observed positive trends in both FDI inflows and the Nifty Energy Index, indicating robust investor confidence despite fluctuations. However, despite these positive trends, our analysis revealed a lack of clear correlation between FDI inflows and Nifty Energy Index returns. This suggests that factors beyond FDI, such as domestic energy policies, global market dynamics, and geopolitical factors, significantly influence the energy sector's performance and stock market indices. Moreover, the significant fluctuations in Nifty Energy Index returns underscore the inherent volatility and risk in the energy sector, necessitating careful risk management strategies by investors. While our regression analysis confirmed the stationarity of both FDI inflows and Nifty Energy Index returns, it also highlighted the limitations of our current analytical frameworks in fully capturing the complexities of the energy sector dynamics. Looking ahead, future research endeavors should focus on conducting more comprehensive analyses that integrate additional variables such as oil prices, government policies, and technological advancements to better understand the drivers of Nifty Energy Index

returns. Moreover, refining regression models and analytical frameworks can help in capturing the complex interactions between FDI inflows, Nifty Energy Index returns, and other relevant variables. These insights hold significant implications for policymakers, investors, and industry stakeholders, informing evidence-based decision-making aimed at promoting sustainable growth and development in the Indian energy sector while mitigating risks and enhancing returns. Therefore, while our study provides valuable insights into the FDI-Nifty Energy Index relationship, further research is imperative to deepen our understanding and guide informed decision-making in the energy sector.

Managerial Implications:

Make wise investment choices: When making investments in the Indian energy sector, take into account variables other than merely foreign capital, such as national and international laws, developments in technology, and fashion trends.

Invest Diversely: Invest in a variety of energy market sectors, such as gas, solar, and wind, to reduce the chance of suffering substantial losses in the event that one of these sectors encounters difficulties.

Promote Green Policies: Urge legislators to enact laws that support the use of renewable energy. Investment in sustainable energy sources can be stimulated by offering incentives for green ventures.

Forecast Future Patterns: By examining historical patterns and projecting future changes in the energy industry, you can stay ahead of the curve. Investing in the infrastructure of developing technologies, such as electric vehicle charging stations, is one example.

Remain Up to Date: Keep up with changes in the energy sector by routinely following news sources.

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Khan, Y. A., & Ahmad, M. (n.d.). Investigating the impact of renewable energy, international trade, tourism, and foreign direct investment on carbon emission in developing as well as developed countries Abbreviations FDI Foreign direct investment EKC Environmental Kuznets curve FMOLS Fully modified ordinary least square DOLS Dynamic ordinary least square model CO 2 Carbon dioxide SGMM System generalized method of moments GDP Gross domestic product RE Renewable energy GHDS Greenhouse gases. https://doi.org/10.1007/s11356-021-12937-3/Published

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