**Sustainable Wealth-Building Strategies with Supply Chain Companies**

**Post Corona and Ukraine Russia Scrimmages:**

**A Comparative Study**

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**Abstract**

Historically, global events have always provided a set back to the existing mechanism of any business operation. The magnitude of such variation may be different from industry to industry but sustainable outlook afterward any global crisis calls for a re-look into strategies. Similar experience persisted when sudden drop of brick-and-mortar stores during corona crisis came into picture. Post corona, the entire working style of supply chain companies revisited a virtual set up. The delivery partners like Dunzo, Blinkit, Zypp, Delhivery, Ecomexpress have transformed the way logistics used to work before Covid-19. On the other hand, recent Russia Ukraine war has posed further global challenges like that of food shortage, supply challenges, global inflation, recessionary trends worldwide. An investor earlier confident of exponential wealth creation in supply chain companies may have to rethink about resilient strategies while creating a portfolio with companies from supply chain industry. In the present study, a comparative analysis has been made by use of exponential GARCH model to explore impact of both these crisis on returns from supply chain companies. The output of this paper shall be beneficial for investors, asset management companies, investment brokers and other portfolio managers.

*Keywords:* Logistics, supply chain, Corona, Ukraine Russia, EGARCH

**Introduction**

Change is the only constant that stands true for different kinds of logistics business running in the Indian and worldwide network. The advent of digitalization has impacted logistics execution and its infrastructure in the new industry 4.0 mechanism. Survival for the giants who may not be coping with such changing era would be difficult in times to come (Kern, 2021; Junge et al, 2019). The process for such digital transformation has begun in the last five years as initiated by customers, employees, competitors, vendors and other stakeholders (Wang, 2016; Winkelhaus and Grosse, 2020). However, several factors like resistance to change, leadership hurdles, organizational culture, data and security breach pose serious challenges in such conversion. Logistic service providers have been working on these trials and multiplication of barriers has been there because of further global attacks on the industry (Cichosz et al, 2020; Singhdong et al, 2021).

The present study has attempted to explore impact of such global shocks on the stock returns of logistics companies. In the past decade logistics industry has grown with a tremendous rate attracting domestic and international investors to plug money (Wang and Dong, 2023). A portfolio consisting of logistics stocks enabled investors to make attractive wealth as well as acting as a hedging option before Covid-19 (Lestari and Pratiwi, 2023). The arrival of corona further enhanced this interest but posed many difficulties for companies to sustain investors interest (Chen et al, 2023). Post omicron, situation had again taken a turn and volatility in this industry increased owing to digital transformations and changeovers required. Thereafter, another Ukraine Russia war event took place which resulted into troublesome issues for logistics movement.

Logistics industry remains one of the potential options for investors to generate wealth and gain significantly in the ongoing volatile environment. The sustainable feature of this sector of the Indian economy provides ample scope for investors to explore. The nature of this industry has been such that it connects the other industries and floats the business volume as well as creates a platform for growth. The mechanism of logistics and its association with the development of businesses promotes this industry and it remains a significant contributor to the nation. In addition, on the financial markets front, the nature of its business further adds to the latent for investors. The stocks of these companies may be added to portfolios for sustainable and evident growth wherein the wealth may be multiplied with possible strategies discussed in the findings. The market dynamics have changed owing to national and international shocks like corona, international trade tensions, visa issues etc. This calls for a sustainable investment option for investors wherein logistics stocks may be one of the relevant options.

The major objectives of this chapter have been divided into two segments; 1) To study the impact of Omicron on logistics stocks returns. 2) To analyse the impact of Russia-Ukraine war on return volatility of logistics stocks.

The remaining chapter has been divided into four sections; second section explains the previous literature, third section narrates the research methodology, fourth section elaborates the findings and discussion and fifth section concludes the study.

**Literature Review**

***World crisis (covid 19 and* Russia - Ukraine war) *and Supply Chain***

Covid -19 has disrupted the global supply chain drastically. Few events which have low chances to occur but highly impacted the operational risk and flow of supply chain system are natural disaster, pandemics, and Wars (Majumdar et al. 2020). Covid- 19 was the anathema pandemic which affected the business and economy globally (Parsons, 2020). Due to this pandemic 94% of the fortune 1000 companies and medium and small sized firms witnessed the disruption of supply chain (Ivanov, 2020; Fortune 2020). Global trade has been declined due to supply chain movement got affected specially in China (Sarkis et al., 2020). Araz et al. (2020) outlined that covid-19 is one of the important disturbances in today’s era which is “breaking many global supply chains.” A Study conducted by World Bank 2022a mentioned that Russia - Ukraine war leads to diversion in energy sector, costlier in terms of trading and commodity market depend on the time period of war and supply chain disturbance. In addition to this Lim et al. (2022) asserted that this war could have negative impact on the economy in terms of business loss, fund deficiency, high inflation, and trade restrictions. Russia- Ukraine War impacted negative shock on the global economy (Roubini 2022). Further RaboResearch (2022) mentioned that European economy is more impacted by this war due to high dependence on Russia and Ukraine for import the raw material. Grondys and Kot (2023) reported that Russia- Ukraine war hit badly various industry such as transportation, logistics and manufacturing which ultimately affects the flow of raw material and supply chain system. Low availability of warehouses leads to increasing cost, high inflation and high prices which again put pressure on supply chain system. Furthermore, firms are opting the relocation option for reducing this effect of shortage of supply, delay in supply and high transportation cost. Few researchers pointed out the impact of these disturbances on the business such as declined in sales revenue, negative impact on procurement strategies, supply of material, logistics service, supply chain performance (Bag et al., 2020; Majumdar et al., 2020; Sharma et al., 2020). Passarelli et al., 2023 further indicated that perturbation in producer part is also enhance due to this war which affects the supply chain system.

***Challenges for supply chain system during crisis:***

Kumar et al. (2020) discussed various challenges faced by supply chain during these disasters are unavailability of manpower , low access of locations for distributions, safety of employees and customers (Ivanov et al. 2017), Poor Infrastructure (Khojasteh , 2018), Delay in the supply of essentials (Oke and Gopalakrishnan, 2009 and Kumar and chandra, 2010), high lead time lead to delay in delivery (Stevenson et al. ,2007, Swafford et al. ,2006, Mujuni et al. ,2011). . In addition, Singagerda (2022) studied the supply chain risk during Russia-Ukraine war and found that due to this war all import export routes are diverted which enhanced the transportation cost. They further mentioned the list of problems faced by supply chain and logistics during this period are destruction of the logistics infrastructure; destroyed transports means and routes; fuel shortage; blockage of various ports (Ratten, V. ,2023). They further found that reduction in the logistics market; reduction in number of supplier as well as destruction of logistics warehouses and decline of transport safety. Grida et al. (2020) described the impact of this on supply chain performance specifically in terms of supply, demand, or logistics. The magnitude of the effects of this event varies between supply, demand and logistics that is based on supply chain system. This war has very bad impact on the business of supply chain and many researchers mentioned the impact in their study such as foreign companies exit from Ukrainian market; business diversification during this period and relocation of business and enterprises and closure of business due to safety (Aigbogun et al. 2022) ; environmental problems , mobility of human capital; reduction in consumer market; mindset change (Ozdemir et al. 2022).United Nations (2022) described the impact of this war are such as disrupted the food, energy and financial market along with elongations in the global supply chains. Further, S&P Global (2022) revealed that this war exacerbates global supply chain and raised the transportation cost and commodity prices. Gomes & Lopes, 2022 disclosed the various issues raised due to this war such as restriction in movement of people and goods among different boarders, which affects smooth functioning of logistics process.

***Resilience in Supply chain system:***

Aigbogun et al. (2022) mentioned the “black swan” to the covid-19 period because this affects the supply chain globally. They studied the supply chain system of pharmaceutical sector and suggested the resilience of supply chain system and found positive association among the orientation of supply chain, rules of cooperation and resilience of supply chain. Further recommended the leadership support, trust, cooperation among partners and simplifying the process to minimize the risk for supporting the resilience of supply chain. Krykavskyy et al. (2023) described that the resilience is required to mitigate the supply chain disruption due to disasters by choosing the right technology. Albors-Garrigos (2020) suggested in their study that old methods of SC will not work, and new forms of Supply chain is required to sustain and resilience in new era. In addition to this Chi et al. (2020); Choi and Guo (2020) mentioned that in this crisis organisations are moving towards demand-driven model for resilience of supply chain. Further, Badraoui et al. 2020; Alghababsheh and Gallear 2020 suggested that supplier’s collaboration and top-level management are very important for the managing the linkage with buyers for resilience and sustainable of supply chain system. Sharma et al. (2020) traced various challenges faced by the companies such as mismatch between demand-supply, technology advancement and resilience in supply chain system. Companies are facing difficulty in building sustainable supply chain system. They further recommend in their study to adopt forward-looking approach which includes, people, process, and technology. Rajak et al. (2022) Outlined that for sustainable supply chain stakeholder’s requirement and critical success factors are required. Social distancing, emergency logistics systems and emergency backup facilities are more vital critical success factors. Singagerda (2022) mentioned that supply chain challenges can be solved by adopting the transparency, flexibility, and development of supply chain for enhancing the efficiency of business. In addition to this Ozdemir, et al. (2022) recommended the approaches such as proactive and reactive towards the resilience of supply chain. Size of the firm is a very critical factor of the organization that affects a lot during resilience and suggested to find other hidden factors to improve the effect of resilience.

***Industry 4.0 on Supply Chain Sustainability***

Belhadi et al. (2021) stated that strategies required for the resilience of supply chain management by implementing advanced technologies of industry 4.0. Many researchers described various modern technologies of industry 4.0 used to reduce the risk of supply chain in this situation such as internet of things (IOT), Artificial Intelligence (AI), Big data, Cloud Computing which provides feasibility, accessibility, and reliability to the system (Javaid et al. (2020), Pratap et al. (2020), Vaishya et al. (2020)). Ali et al. (2020) pointed out various advantages of implementing IoT in supply chain system such as low maintenance cost along with less disturbance to environment. Further, Vadkhiya and Rajak (2024) studied the coal industry in India and specified the big data analytics and Internet on Things are main elements in sustainability of supply chain in this industry. Nirmal and Reddy (2024) discussed the applications of new technologies of Industry 4.0 i.e. IOT (Internet of Things), Big data Analytics, Blockchain technology etc. to achieve the sustainability in supply chain industry. Kumaran et al. (2024) sustainability in supply chain system creates issues and requirements in the logistics system. They further stated that industry 4.0 can be achieved with adoption of logistics 4.0 in the system. Sustainability can be achieved with adoption of advanced technologies of logistics 4.0. This logistics 4.0 system along with smart technologies support the customers and assist in the sustainability in supply chain system management. (SSCM). Herold, et al. (2021) stated that immediate actions required for the minimization the effects of the crisis activities. Lytvyn et al. (2023) highlighted that the Ukraine economy need 5-7 years to regain after the war and covid-19. These crisis affects the Ukraine economy and business rudely. They further mentioned that government and national banks are doing many measures for overcome of the consequences of these crisis. K.E.K. et al (2023) discussed the sharing network strategy which is beneficial for the industries poignant to the sustainability in supply chain practices. Further the firms having sharing network strategy in supply chain had high economic value in comparison to other firms. Additionally, Novoszel and Wakolbinger, 2022 clarified that supply chain networks are more popular in today’s era which enhance the more risk in supply chain disruption in both situations, covid-19, and Russia -Ukraine war .

***Strategies for Sustainability of Supply Chain system***

Grondys and Kot (2023) expressed that flexible and diverse supply chain is the best solution which respond quickly towards the dynamic environment. Prohorovs, A. (2022) marked out that in these situation firms’ performance declined and power to attract the finance is also reduced. Specially loss in Russia market, export companies must enter in new market due to issues in logistics while working with companies in Ukraine. Karmaker et al (2021) inquired various drivers for the sustainability of supply chain system in this epidemic and conflict situation in emerging economics and stated that financial assistance from supply chain partners and government is necessary to addressed with the shock on supply chain. Ivanov and Dolgui (2021) urged that companies should consider the viable supply chain model for supply chain for the proper allocation of supply-demand situation and then adopt control mechanisms. This model helps the organisations in taking recovery and re-building decisions for supply chain at global level. Rajak, et al. (2021) studied the sustainability in supply chain management specifically for the transportation system. They mentioned the advantages of the performance analysis of the transportation system are minimise the followings: cost of energy consumption, cost of capital and cost of work safety and labour health. Sharma et al. (2022) directed the firms to redesign the strategies to cope up with current scenario and amend their business model to attain the sustainable business. They recommended few key factors for sustain such as Resilience, viability, real-time information, supplier networks, supplier collaboration, data analytics, integration and demand forecasting, open and transparent system for stakeholders.

**Research Methodology**

**Figure 1: Research Methodology**

Data Collection through google finance

Computation of log returns of logistics stocks

ADF Test for Unit root

Application of Exponential GARCH Model

**Data**

The daily closing stock prices of twenty logistics-based companies has been taken with the help of google finance. The data ranges from July 2021 to August 2023. The data has been divided into two sub-parts consisting of post omicron analysis (July 2021 to January 2022) and post Russia Ukraine war analysis (February 2022 to August 2023).

These raw stock prices have been converted into returns with the formula

Rit=Pt- (Pt-1)/(Pt-1)\*100………………….(1)

where, Rit=Daily return

Pt=Current Day

(Pt-1)=Previous Day

**Methodology**

Primarily, data has been tested with unit root analysis by applying Augmented Dickey Fuller Statistic. Thereafter, descriptive statistics in both sub-events have been measured. EGARCH (1,1) model has been applied to test the leverage effect. The results from these statistical measures have been presented in the segment findings and discussion.

**Unit root testing**

Augmented and Dickey Fuller test (Cheung & Lai, 1995) has been applied to check for stationary series at level, first difference and second difference. (Timmermann and Granger, 2004) stationary series may be used for effectiveness of the model. Hence, the results obtained from ADF test have been reported in Table 3 and thereafter EGARCH has been applied.

**EGARCH (1,1)**

(Nelson, 1991) EGARCH model has been used to test for the negative shocks from the two sub-events taken in the study. The results have compared as regards to negative shocks over positive shocks; whether returns have been more volatile during negative shocks. Following equations have been run:

*r j*,*t* =δ'*j I j*,*t*−1 + ξ *j*,*t* ……………………(2)

ξ*j*,*t*=σ*j*,*tzj*,*t………………………………..…*(3)

*zj*,*t |*Ω*t*−1 ~ψ(0,1,ν)…………….. ……...(4)

lnσ2*j*,*t* =ω*j* +β*j* ln(σ2*j*,*t*−1) + γ*t*−1/ σ2*t*−1  + α[*t*−1**|/**σ2*t*−1 -2/ π]…………………...(5)

where σ2 *j*,*t* is the conditional variance being the one period ahead estimate for the variance based on a past information assumed to be relevant.

*zj*,*t*  being the standardized residual. ψ (.) resembles a conditional density function and ν denotes a vector of parameters required to specify probability distribution. ω, α, β, γ are parameters to be estimated. The major advantage of EGARCH model may be that even if the parameters are negative, σ2 *j,t* will be positive. α parameter shows the symmetric effect of the model (GARCH effect). β measures the persistence of conditional volatility irrespective of the happenings. When this parameter (β) is large volatility shall take time to die out followed by a crisis (Alexander, 2009). γ parameter shows the asymmetry (leverage effect) to fit EGARCH model which allows for testing of asymmetries.

**Findings and Discussion**

**Table 1: Descriptive Statistics (Omicron)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Company** | **Mean** | **Std. Dev.** | **Jarque Bera** | **Skewness** | **Kurtosis** |
| ABC India Ltd | 75.273 | 13.540 | 4.952  (0.084) | 0.697 | 3.327 |
| Allcargo Logistics Ltd | 219.010 | 100.308 | 7.054  (0.029) | 0.645 | 1.881 |
| Blue Dart Express Ltd | 5931.343 | 1079.407 | 0.543  (0.762) | 0.220 | 2.825 |
| Chartered Logistics Ltd | 6.683 | 4.702 | 87.005  (0.000) | 2.208 | 7.062 |
| Container Corporation of India | 632.826 | 88.324 | 5.674  (0.058) | -0.762 | 2.839 |
| Essarshpng(Essar shipping) | 9.808 | 1.179 | 1.931  (0.380) | -0.217 | 3.782 |
| Gati Ltd | 135.508 | 29.025 | 2.370  (0.305) | 0.036 | 2.012 |
| GKW LIMITED | 594.934 | 67.231 | 4..785  (0.091) | 0.613 | 2.310 |
| Lancer Container Lines Ltd | 156.016 | 89.671 | 25.497  (0.000) | 1.250 | 5.703 |
| Mahindra Logistics Ltd | 586.876 | 97.014 | 4.101  (0.128) | 0.265 | 1.810 |
| Navkar Corporation Ltd. | 43.394 | 7.008 | 128.455  (0.000) | 1.881 | 9.245 |
| Oricon Enterprises Ltd | 27.774 | 4.821 | 1.219  (0.543) | 0.344 | 2.826 |
| Patel Integrated Logistics Ltd | 14.243 | 1.631 | 2.867  (0.238) | -0.492 | 3.469 |
| Shipping Corporation of India | 58.673 | 7.472 | 5.504  (0.063) | 0.169 | 1.529 |
| Shreyas Shipping & Logistics Ltd. | 215.374 | 119.352 | 5.101  (0.078) | -0.218 | 1.614 |
| Snowman Logistics Ltd | 47.082 | 8.066 | 1.099  (0.577) | -0.278 | 2.618 |
| TCI Express | 1413.772 | 424.628 | 3.217  (0.200) | 0.251 | 1.961 |
| Tiger Logistics (India) Ltd | 102.364 | 76.644 | 12.557  (0.001) | 1.108 | 3.531 |
| Transport Corportion of India | 31.630 | 7.857 | 5.917  (0.051) | -0.143 | 1.462 |
| VRL Loistics | 345.260 | 133.697 | 7.203  (0.027) | 0.812 | 2.416 |

*Note: Jarque bera coefficient has been shown with its p-value in the bracket.*

**Table 2: Descriptive Statistics (Russia-Ukraine)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Company** | **Mean** | **Std. Dev.** | **Jarque Bera**  **(p-value)** | **Skewness** | **Kurtosis** |
| ABC India Ltd | 82.711 | 10.648 | 49.201  (0.000) | 1.312 | 4.196 |
| Allcargo Logistics Ltd | 345.345 | 51.316 | 9.385  (0.009) | 0.159 | 1.781 |
| Blue Dart Express Ltd | 7098.346 | 985.655 | 13.246  (0.001) | 0.693 | 2.437 |
| Chartered Logistics Ltd | 6.138 | 1.572 | 11.775  (0.002) | 0.702 | 2.865 |
| Container Corporation of India | 669.247 | 56.739 | 6.999  (0.030) | 0.519 | 2.673 |
| Essarshpng(Essar shipping) | 9.443 | 1.859 | 21.503  (0.000) | 0.938 | 3.338 |
| Gati Ltd | 151.992 | 23.256 | 2.990  (0.224) | 0.296 | 2.605 |
| GKW LIMITED | 623.646 | 143.396 | 332.365  (0.000) | 2.496 | 8.591 |
| Lancer Container Lines Ltd | 219.774 | 87.272 | 91.545  (0.000) | 1.556 | 5.405 |
| Mahindra Logistics Ltd | 469.132 | 82.640 | 20.355  (0.000) | 0.806 | 3.917 |
| Navkar Corporation Ltd. | 55.171 | 10.179 | 1.405  (0.495) | -0.238 | 3.103 |
| Oricon Enterprises Ltd | 29.072 | 5.793 | 7.831  (0.019) | 0.510 | 2.468 |
| Patel Integrated Logistics Ltd | 14.611 | 1.541 | 11.637  (0.002) | 0.701 | 2.977 |
| Shipping Corporation of India | 66.223 | 3.587 | 6.808  (0.033) | -0.127 | 1.958 |
| Shreyas Shipping & Logistics Ltd. | 318.669 | 38.544 | 4.766  (0.092) | -0.370 | 2.493 |
| Snowman Logistics Ltd | 37.683 | 6.167 | 49.781  (0.000) | 1.210 | 4.598 |
| TCI Express | 1712.550 | 180.735 | 5.103  (0.077) | 0.464 | 2.970 |
| Tiger Logistics (India) Ltd | 295.335 | 83.886 | 16.032  (0.000) | 0.364 | 1.524 |
| Transport Corportion of India | 40.126 | 3.477 | 2.033  (0.361) | 0.030 | 2.417 |
| VRL Loistics | 585.820 | 80.953 | 4.394  (0.111) | -0.174 | 2.212 |

*Note: Jarque bera coefficient has been shown with its p-value in the bracket.*

20 listed logistics companies have been taken in the present study. The mean average return has been found highest for Blue Dart Express Ltd company and minimum for Chartered Logistics Ltd company during omicron period and Russia Ukraine period analysis respectively.

The mean average analysis indicated Omicron has been more impactful to degrade the stock returns. The Standard Deviation has been higher though in Omicron as compared to the Russia-Ukraine war. According to the Jarque Bera test, Skewness and kurtosis the data has been mostly found appropriate for a time series analysis and volatility testing.

**Table 3: ADF Results (Omicron)**

|  |  |  |
| --- | --- | --- |
| **Company** | **Levels**  **(p-value** | **1st Diff.**  **(p-value)** |
| ABC India Ltd | -6.466  (0.000) | - |
| Allcargo Logistics Ltd | -3.995  (0.002) | - |
| Blue Dart Express Ltd | -3.709  (0.006) | - |
| Chartered Logistics Ltd | -5.664  (0.000) | - |
| Container Corporation of India | -4.411  (0.000) | - |
| Essarshpng(Essar shipping) | -5.300  (0.000) | - |
| Gati Ltd | -4.110  (0.002) | - |
| GKW LIMITED | -7.919  (0.000) | - |
| Lancer Container Lines Ltd | -4.854  (0.000) | - |
| Mahindra Logistics Ltd | -4.808  (0.000) | - |
| Navkar Corporation Ltd. | -3.689  (0.006) | - |
| Oricon Enterprises Ltd | -5.200  (0.000) | - |
| Patel Integrated Logistics Ltd | -1.527  (0.511) | -8.596  (0.000) |
| Shipping Corporation of India | -3.559  (0.009) | - |
| Shreyas Shipping & Logistics Ltd. | -4.901  (0.000) | - |
| Snowman Logistics Ltd | -4.264  (0.001) | - |
| TCI Express | -4.593  (0.000) | - |
| Tiger Logistics (India) Ltd | -1.566  (0.493) | -6.409  (0.000) |
| Transport Corportion of India | 3.229  (0.023) | -6.010  (0.000) |
| VRL Loistics | -2.788  (0.066) | -7.777  (0.000) |

*Note: Coefficient values have been shown with p-values in the bracket*

**Table 4: ADF Results (Russia Ukraine War)**

|  |  |  |
| --- | --- | --- |
| **Company** | **Levels**  **(p-value)** | **1st Diff.**  **(p-value)** |
| ABC India Ltd | -9.815  (0.000) | - |
| Allcargo Logistics Ltd | -9.008  (0.000) | - |
| Blue Dart Express Ltd | -1.045  (0.735) | -10.705  (0.000) |
| Chartered Logistics Ltd | -1.056  (0.731) | -10.224  (0.000) |
| Container Corporation of India | -9.946  (0.000) | - |
| Essarshpng(Essar shipping) | -8.816  (0.000) |  |
| Gati Ltd | -1.377  (0.591) | -11.248  (0.000) |
| GKW LIMITED | -2.883  (0.050) | - |
| Lancer Container Lines Ltd | -6.943  (0.000) | - |
| Mahindra Logistics Ltd | -0.724  (0.836) | -9.913  (0.000) |
| Navkar Corporation Ltd. | -2.558  (0.104) | 13.954  (0.000) |
| Oricon Enterprises Ltd | -1.232  (0.659) | -10.220  (0.000) |
| Patel Integrated Logistics Ltd | -9.059  (0.000) | - |
| Shipping Corporation of India | -11.025  (0.000) | - |
| Shreyas Shipping & Logistics Ltd. | -9.396  (0.000) | - |
| Snowman Logistics Ltd | -2.413  (0.107) | -11.733  (0.000) |
| TCI Express | -0.840  (0.804) | -9.564  (0.000) |
| Tiger Logistics (India) Ltd | -2.710  (0.074) | -9.078  (0.000) |
| Transport Corportion of India | -3.441  (0.011) | -13.525  (0.000) |
| VRL Loistics | -2.238  (0.194) | -8.413  (0.000) |

*Note: Coefficient values have been shown with p-values in the bracket.*

The foremost assumption of stationary series has been tested with ADF test. The sample companies have been found stationary at first and second difference in a varied manner. The conversion has been done with a log difference for making data stationary at I(0) and I(1) as appropriate in case of different companies.

**Table 5: EGARCH (Omicron)**

|  |  |  |  |
| --- | --- | --- | --- |
| Company | Alpha | Gama | Beta |
| ABC India Ltd | -0.691  (0.000) | 0.178  (0.000) | 0.840  (0.000) |
| Allcargo Logistics Ltd | -0.861  (0.000) | 1.878  (0.000) | 0.731  (0.000) |
| Blue Dart Express Ltd | -0.459  (0.146) | -1.301  (0.000) | 0.290  (0.254) |
| Chartered Logistics Ltd | -2.275  (0.000) | 1.607  (0.000) | 0.202  (0.000) |
| Container Corporation of India | -0.655  (0.000) | 0.070  (0.488) | 0.780  (0.000) |
| Essarshpng(Essar shipping) | -2.002  (0.000) | -1.643  (0.000) | 0.463  (0.000) |
| Gati Ltd | -0.582  (0.000) | 0.302  (0.203) | 0.278  (0.004) |
| GKW LIMITED | -1.006  (0.000) | 0.579  (0.001) | 0.685  (0.000) |
| Lancer Container Lines Ltd | -1.580  (0.049) | 1.935  (0.000) | 0.481  (0.149) |
| Mahindra Logistics Ltd | -1.762  (0.000) | -0.967  (0.013) | -0.463  (0.047) |
| Navkar Corporation Ltd. | -0.125  (0.628) | 0.732  (0.000) | 0.733  (0.000) |
| Oricon Enterprises Ltd | -1.148  (0.012) | 0.026  (0.916) | 0.310  (0.210) |
| Patel Integrated Logistics Ltd | 0.788  (0.130) | 0.037  (0.884) | -0.192  (0.694) |
| Shipping Corporation of India | -3.801  (0.000) | -4.700  (0.000) | -0.317  (0.006) |
| Shreyas Shipping & Logistics Ltd. | -0.197  (0.551) | -0.524  (0.021) | -0.520  (0.104) |
| Snowman Logistics Ltd | -0.368  (0.646) | -0.855  (0.043) | 0.391  (0.248) |
| TCI Express | -1.100  (0.000) | 1.460  (0.000) | 0.239  (0.055) |
| Tiger Logistics (India) Ltd | -1.601  (0.000) | 2.225  (0.000) | 0.616  (0.000) |
| Transport Corportion of India | -3.725  (0.000) | 0.795  (0.000) | -0.229  (0.000) |
| VRL Loistics | -0.451  (0.055) | 1.133  (0.000) | 0.642  (0.000) |

*Note: Coefficient values have been shown with p-values in the bracket.*

Analysis of the sampled companies uncover their stationary nature through different approaches at both first and second differences. Employing a logarithmic transformation eased to achieving I(0) and I(1) stationarity fitted to the specific characteristics of each company.

**Table 6: EGARCH (Russia Ukraine War)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **Alpha** | **Gama** | **Beta** |
| ABC India Ltd | -072  (0.638) | 0.386  (0.001) | -0.843  (0.000) |
| Allcargo Logistics Ltd | -0.485  (0.000) | -0.345  (0.003) | 0.862  (0.000) |
| Blue Dart Express Ltd | -0.345  (0.000) | -0.355  (0.010) | 0.882  (0.0S00) |
| Chartered Logistics Ltd | -0.881  (0.000) | 0.577  (0.004) | 0.330  (0.602) |
| Container Corporation of India | -0.085  (0.688) | 0.515  (0.000) | 0.493  (0.020) |
| Essarshpng (Essar shipping) | -0.779  (0.000) | 0.807  (0.000) | 0.449  (0.000) |
| Gati Ltd | -0.279  (0.000) | 0.524  (0.000) | 0.910  (0.000) |
| GKW LIMITED | 0.693  (0.000) | -0.180  (0.000) | 1.021  (0.000) |
| Lancer Container Lines Ltd | 0.849  (0.001) | 0.748  (0.000) | 0.074  (0.683) |
| Mahindra Logistics Ltd | 1.120  (0.000) | 0.478  (0.002) | -0.218  (0.107) |
| Navkar Corporation Ltd. | -0.078  (0.629) | 0.713  (0.000) | 0.856  (0.000) |
| Oricon Enterprises Ltd | -0.233  (0.000) | 0.705  (0.000) | 0.110  (0.000) |
| Patel Integrated Logistics Ltd | -0.628  (0.018) | 0.618  (0.000) | 0.393  (0.014) |
| Shipping Corporation of India | -0.313  (0.410) | -0.403  (0.055) | 0.035  (0.920) |
| Shreyas Shipping & Logistics Ltd. | -0.143  (0.605) | -0.547  (0.003) | -0.320  (0.276) |
| Snowman Logistics Ltd | -0.135  (0.283) | 0.525  (0.000) | 0.894  (0.000) |
| TCI Express | 1.033  (0.006) | 0.382  (0.062) | 0.131  (0.633) |
| Tiger Logistics (India) Ltd | 0.439  (0.108) | 0.379  (0.053) | -0.164  (0.541) |
| Transport Corportion of India | 0.268  (0.198) | -0.073  (0.553) | 0.947  (0.000) |
| VRL Loistics | -0.743  (0.000) | 0.338  (0.007) | 0.555  (0.000) |

*Note: Coefficient values have been shown with p-values in the bracket.*

In the analysis of various logistics companies using EGARCH model to evaluate stock price dynamics amid omicron impact in analysis we found that most of the companies have significant leverage effect with positive and negative mean reverting behaviour companies like ABC India ltd and Allcargo Logistics Ltd have strong mean reverting behaviour and positive leverage effect which indicated that their stock volatility tends to revert to mean level additionally positive returns have substantial impact on future volatility. This suggest that these companies stock prices influenced by past trends of volatility and positive market performance (persistence of volatility). Similarly, companies like Essar shipping and Shipping corporation of India etc. have strong mean reverting behaviour with negative leverage effect this indicated that negative returns have substantial impact on future volatility. This implies that these companies stock prices tend to revert mean level with negative market performance.

Chartered logistic ltd have moderate mean reverting behaviour with positive leverage effect this indicates that positive returns have moderate impact on future volatility and stock prices influences by past trends volatility and positive market performance to a moderate extent.

Companies like Patel Integrated logistics, Snowman have non-significant mean reverting behaviour and non-significant positive leverage effect this indicates that stock volatility may not necessarily revert to mean level and the impact on past returns on future volatility is not statistically significant. Similarly, some companies like VRL logistics have non-significant mean reverting behaviour but they positive and significance leverage effect this suggest that their stock may not necessarily revert to mean level but positive returns have a substantial impact on future volatility.

In the analysis of impact during the period of Russia vs Ukraine war on logistic companies using EGARCH model some companies such as Esser shipping, lancer container lines, patel integrated logistics ltd, VRL logistics etc have strong mean reverting behaviour with positive leverage effect and positive market performance which indicating that stock volatility tends to revert mean level additionally positive returns have substantial impact on future volatility and their stock prices influenced by past trends of volatility and positive market performance. And company such as GKW have strong mean reverting behaviour with negative leverage effect. Which indicates that stock volatility tends to revert mean level and negative returns have substantial impact on future volatility this implies that stock prices influenced by past trends of volatility and negative market performance. Mahindra logistics have significant strong mean reverting behaviour and significant positive leverage effect but beta coefficient which indicated market performance is not significant similarly Chartered logistics have moderate mean reverting behaviour with moderate positive leverage effect but beta is not significant.

Similarly, Navakar corporation ltd and ABC India ltd, Snowmen logistics etc have not significant weak mean reverting behaviour with positive leverage effect and positive market performance. Companies such as Allcargo logistics, Bluedart etc have moderate mean reverting behaviour with moderate negative leverage effect which indicates that stock volatility tends to moderately revert mean level additionally negative returns have substancial impact on future volatility and their stock prices influenced by past trends and market performance may be positive or negative direction.

And companies like TCI express, Tiger logistics ltd, Transport corporation of India etc. have statistically non-significant mean reverting behaviour with positive/negative not significant leverage effect and non-significant market performance which mean these companies have some positive negative mean reverting behaviour or leverage effect and may historic volatility impacting on stock prices and may indicating positive/negative market performance but these are not statistically proven/significant.

**Conclusion**

The study has analyzed the impact of two important shocks on the financial markets; Omicron and the Russia-Ukrainian conflict. The results indicated that Omicron has been more impactful in influencing the stock returns of logistics companies. However, statistical evidence has been in a mixed form for a comparison between two events for the persistence of volatility among returns. Therefore, it may be a potential strategy for investors to utilize logistics companies' shares which can provide a hedge to their investment portfolio. Most of the sample companies have shown positive gamma values meaning similar absorption of negative and positive shocks. Hence, investors may keep investing in these stocks at the time of turmoil or financial disturbances in the economy. Further, in the long run, these stocks shall add wealth to the retail portfolios of individual investors.

It may be concluded from the results obtained in the present study that logistics stocks shall continue to be an attractive investment option for investors. This industry has ample scope for providing opportunities to the likely investors who look out for stocks supportive and capable of providing hedging during crisis periods. Careful analysis and planned portfolios with logistics stocks can keep investors engaged in sustainable and growth-oriented schemes. Hence, logistics stocks may be incorporated into the portfolio where a balance has to be made with risky yet attractive return options.

**Managerial Implications**

Logistics stocks have picked up momentum, especially after the crisis and events like covid-19, omicron, Russia-Ukraine war etc. Investors and other stakeholders have been attracted to this industry due to its potential and paramount contribution to growth and wealth creation. The present study has provided directions for development of specific investment strategies which may be helpful to investors as well as stakeholders of this industry. Sustainable opportunities may be explored while selecting companies for investing in this segment of financial markets. There may be a requirement of further cautious approach to gain perceptively from this financial avenue.

**Future Research Directions**

The present study has been restricted to analyzing twenty logistics stocks post-omicron and Russia-Ukraine war. There may be several possibilities to explore the stocks of this industry further with additional and comparative stocks as well as industries. Also, ongoing national and international events may be incorporated and structural breaks may be studied supplementarily.

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