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Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/econis-archiv/>

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Relationship between Crude Oil Price Changes and Airlines Stock Price: The Case of Indian Aviation Industry

Chinnadurai Kathiravan^{1*}, Murugesan Selvam², Balasundram Maniam³, Sankaran Venkateswar⁴

¹Department of Commerce and Financial Studies, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India, ²Department of Commerce and Financial Studies, Faculty of Management, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India, ³Sam Houston State University, Texas, USA, ⁴School of Economics and Business Administration, Saint Mary's College of California, USA. *Email: kathirnb@gmail.com

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ABSTRACT

The present study investigated the relationship between airline stock price and crude oil price. For this study, six airlines such as Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet and three crude oil markets, WTI-West Texas Intermediate and Texas Light Sweet, Brent -North Sea Brent Crude, and Dubai-Dubai Crude, were selected Based on their market capitalization. According to empirical results, a Crude oil price triggered fluctuations in most of the airline stock returns. Moreover, Air India, IndiGo, Jet Airways and Spice Jet experienced statistically significant relationships between their stock returns and crude oil price but did not correlate with them during the study period from January 1, 2007 to November 30, 2018. The findings of present study would be useful for individual and institutional investors and policy makers.

Keywords: Crude Oil Price, Airline Stock Return, Descriptive Statistics, Unit Root Test, Correlation Matrix, Granger Causality Test

JEL Classifications: G11, G14, G15, Q43, R40

1. INTRODUCTION

Crude oil is considered as the lifeblood in the Twenty First century for the developing countries like India and China, which are experiencing heavy consumption of crude oil in recent years (Huang et al. 1996). In the near future, China and India are expected to consume more crude oil. Table 1 describes how crude oil consumption increased during the period of 10 years from 2007 to 2017, by the sample countries. According to the Table, crude oil consumption has been increasing rapidly in the South Asian developing countries, particularly in India and China. Besides, it is to be noted that China (122.5%) and India (90.0%) accounted for high rate of consumption during the period of 2007-2017. Crude oil has been considered on important economic indicator (Huang et al., 1996). Majority of the previous research studies also confirmed that the changes of crude oil price recorded strong

influence on the economic activities but negatively Hamilton (1983), Gisser and Goodwin (1986), Cunado et al. (2005) and Hamilton (2003). Besides, the changes in crude oil price reported significant impact on the developing countries in the world. In 1973, the OPEC increased the crude oil price from \$3 per barrel to \$13 per barrel and it created economic hardship to developing countries, by increasing import costs (Rifkin, 2002, chapter 9).

1.1. Stock Market Movement and Crude Oil Price Fluctuation

According to the efficient market hypothesis theory, the stock price is determined by all publicly and privately available information. Huang et al. (1996) found that the crude oil price changes did have a negative impact on stock price. But Nandha and Faff (2008) found that the crude oil price changes influenced individual stock price, issued by crude oil related company but it did not have

much impact on broad based stock indices. The crude oil price could influence the stock price in three different ways, as follows.

- The crude oil price would lead to changes in production cost and expected cash flows. These changes would influence the stock price through the cash flows (Huang et al., 1996)
- The crude oil price changes may trigger the inflation and it would raise the interest rate. Higher interest rate would lead to an increase in the discount rate price and discount rate would influence stock price of a particular company (Huang et al., 1996)
- The crude oil price changes could influence the commodity prices of a particular enterprise, and it may influence the stock price of a particular firm that deal with commodity (Edelstein and Kilian, 2009).

The different ways which crude oil price could influence the stock market, is exhibited in Figure 1, which is self-explanatory.

1.2. Indian Aviation Industry

Indian Aviation Industry has a long history and India is in the 9th position globally in terms of industry size. According to

Table 1: Percentage of increase of crude oil consumption (2007-2017) by the selected countries

Selected countries	% Change
Brazil	39.0
China	122.5
India	90.9
Indonesia	58.6
Japan	-9.0
Malaysia	45.5
Pakistan	2.9
Russia	-31.2
Thailand	57.4
United States	25.8

Source: BP Statistical Review of World Energy, June 2017 (www.BP.com)

Table 2: Top players in the Indian aviation industry

Name of the airline	Market share (%)
Spice Jet	14
Go Air	8
Jet Airways	15.9
Jet Lite	2.4
Air India	13.2
IndiGo	38

Source: India Brand Equity Foundation Report, 2017

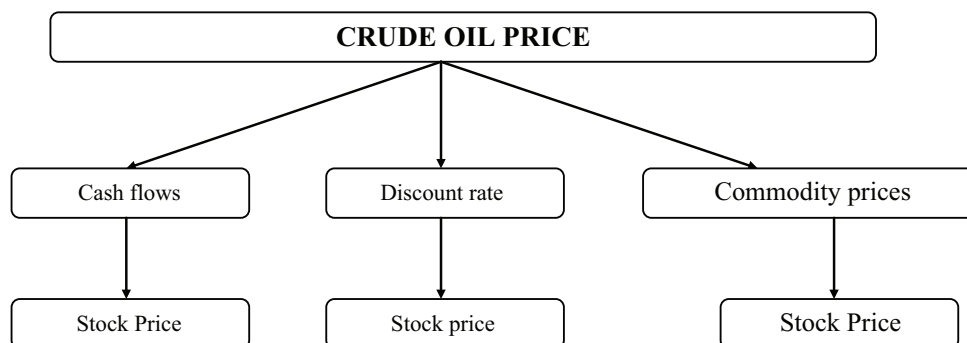
Table 2, Indigo was the market leader with 38% of market share, followed by Jet Airways with 15.9%. Spice Jet stands at 3rd place with 14%, Air India at 4th with 13.2% and Go Air at 5th position, with market share of 8%. This is followed by Jet Lite, which has a market share of 2.4%. There were other players also but their market shares were significantly low.

2. REVIEW OF LITERATURE

There are numerous studies, relating to crude oil price and stock market returns. Majority of the research studies were focused on the developed nations.

Chen et al. (1986) investigated the impact of macroeconomic variables on stock price movements. It was found that the study did not find any evidence. Hamao (1989); Kaneko and Lee (1995) tried to find evidence in Japanese equity data but did not find any evidences. Ferson and Harvey (1995) analysed previous literature and found that crude oil price did have a statistically significant impact on the 18 equity markets returns during the study period. Huang et al. (1996) analyzed the linkages between crude oil price movement and U.S. stock returns and found that crude oil price movement did have impact on the petroleum stock index volatility. Faff and Brailsford (1999) studied the relationship between Australian equity returns and oil price factor, using monthly data, from the period of 1983 to 1996. The study found positive impact of crude oil prices on several industries, namely, Oil and gas, paper and packaging and transportation industries. Mohanty et al. (2014) discussed the impact of crude oil price on US major industries like airlines, hotels, restaurants, and travel and tourism, and it was found that crude oil price recorded a negative influence on the airlines industries stock price return during 2008-2009. Shaeri et al. (2016) found that crude oil price influenced airlines stock price than that of other industries. According to Yashodha et al. (2016), the crude oil price created negative impact on Cathay Pacific Airways Limited and China Airlines. Kristjanpoller and Concha (2016) also found positive influence on 56 airlines. Hsu (2017) reported that the crude oil price created impact on six US airlines. Yun and Yoon (2018) investigated the impact of three crude oil price (WTI, Brent, Dubai) on the stock price of four airlines (Korean Air, Asiana Airlines, Air China, and China Eastern Airlines), using VAR-GARCH. There was negative relationship between crude oil price and the airlines stock prices.

Figure 1: Impact of crude oil price on the stock market



Source: Developed by authors

The aim of the present study was to investigate the interrelationships between crude oil price changes and Airline stock price in India. Majority of previous studies focused on the developed nations like United States and European countries, but no study was focused on developing countries like India. Hence, the present study fills the gap.

3. OBJECTIVES OF THE STUDY

This present study examined the casual linkages and relationship among the three crude oil price (Brent, Dubai and WTI) and six Airlines Stock Price (Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet), over the sample period, in India.

4. HYPOTHESES OF THE STUDY

- a. NH1 There is no normal distribution among returns of crude oil price and Airlines Stock Price in India.
- b. NH2 There is no stationarity among the returns of crude oil price and Airlines Stock Price in India.
- c. NH3 There is no co-relation between returns of crude oil price and Airlines Stock Price in India.
- d. NH4 There is no causal relationship among returns of crude oil price and Airlines Stock Price in India.

5. DATA AND METHODOLOGY

5.1. Sample Selection and Data Collection

In order to examine the relationship between airlines stock price in India and global crude oil price movements, as pointed out earlier, six airlines companies were selected who occupied an important position in the air transport market in India. The study focused on six airlines stock price in India (namely Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) and three internationally recognized crude markets (market based on market share) WTI-West Texas Intermediate and Texas Light Sweet, Brent -North Sea Brent Crude, and Dubai-Dubai Crude. The data regarding daily closing stock prices of each of the airlines company were collected from Yahoo Finance database, available online at www.finance.yahoo.com and website of national stock exchange. The crude oil price data were collected from U.S. Energy Information Administration (<https://www.eia.gov/>). For the purpose of this study, the daily return data were converted by taking natural logarithm of the raw data. In this study, the crude oil price was considered the independent variable and Indian aviation share price as dependent variables.

5.2. Period of Study

For the purpose of investigating the relationship between airlines stock price and crude oil price, the study covered a period of 11 years from January 1, 2007 to November 30, 2018.

5.3. Tools used for the Analysis

For the analysis of this study, the following tools were used.

- Descriptive statistics (to find out the normal distribution normal distribution among returns of Crude oil price and Airlines Stock Price in India).

- Unit root test (to test the stationarity of normal distribution among returns of Crude oil price and Airlines stock price in India).
- Correlation matrix (to find the correlation between normal distribution among returns of Crude oil price and Airlines stock price in India) and
- Granger causality test (to examine the linkage among normal distribution among returns of crude oil price and Airlines stock price in India).

5.4. Limitation of the Study

This present study suffered from the following limitations.

- The study was limited only six airlines in India
- The study was based only on secondary data
- All the limitations, associated with various statistical tools, may also apply to this study.

6. ANALYSIS AND EMPIRICAL RESULTS

- 6.1 Normality for the returns of crude oil price and airlines stock price in India,
- 6.2 Stationarity for the returns of crude oil price and airlines stock price in India
- 6.3 Pearson correlation for the returns of crude oil price and airlines stock price in India
- 6.4 Granger causality for the returns of crude oil price and airlines stock price in India.

6.1. Normality for the Returns of Crude Oil Price and Airlines Stock Price in India

Table 3 describes the results of descriptive statistics (Mean, Median, Max., Min., Standard Deviation, Skewness, Kurtosis and Jarque Bera (JB) Test) for the returns of the three crude oil price (Brent, Dubai and WTI) and six airlines stock price (Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) in India during the study period from January 1, 2007 to November 30, 2018. It is to be noted that the mean values for the returns of the sample three crude oil price (Brent, Dubai and WTI) and six airlines stock price were negative. It is observed that the Brent and Spice Jet recorded the highest standard deviation of 2.90 and 3.46 respectively while Dubai and Air India recorded lowest standard deviation, with values of 2.44 and 1.77 respectively, which indicated the risk in the market. It is clearly understood from the Skewness test that out of three crude oil price, only one crude oil price namely WTI (−0.04) and out of six airlines stock price, only two airline stock price namely, Air India (−0.28) and IndiGo (−0.48) earned negative value during the study period. It is important to note that all crude oil prices and airlines stocks' kurtosis values were more than three, which made it Leptokurtic. Besides, the values of JB for the sample crude oil price and airlines stock price were normally distributed. In other words, the distribution of the three crude oil price and six airlines stock price return data were normally distributed during the study period. Hence, the Null Hypothesis (NH1), There is no normal distribution among returns of crude oil price and airlines stock price in India, was rejected.

6.2. Stationarity for the Returns of Crude Oil Price and Airlines Stock Price in India

The results of augmented dickey fuller (ADF) test, for the returns of three crude oil price (Brent, Dubai and WTI) and six airlines

stock price (Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) in India during the study period from January 1, 2007 to November 30, 2018, are displayed in Table 4. It is to be noted that test critical values for three crude oil price and six airlines stock price return data were calculated at significant level of 1%, 5% and 10%. The probability values (P-value), for three crude oil price and six airlines stock price return data were zero. According to the Table, the statistical values for all samples were -54.9615 (Brent), -54.873 (Dubai), -52.6556 (WTI), -47.4837 (Air India), 53.4835 (Go Air), -48.2857 (IndiGo), -51.4379 (Jet Lite), -54.9615 (Jet Airways), -47.4837 (Spice Jet), during the study period. It is important to note that the statistical values for three crude oil price (Brent, Dubai and WTI) and six airlines stock price (Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) were less than that of test critical values at 1%, 5% and 10% level of significance. The results of Unit Root Test indicated that the returns data of three crude oil price and six airlines stock price attained stationarity during the study period. Hence the Null Hypothesis (NH2), There is no stationarity among the returns of Crude oil price and Airlines Stock Price in India, was rejected and the alternate hypothesis, namely, there is stationarity among the returns of crude oil price and airlines stock price in India, was accepted.

6.3. Pearson Correlation for the Returns of Crude Oil Price and Airlines Stock Price in India

Table 5 shows the results of Pearson Correlation, among the returns of three crude oil price (Brent, Dubai and WTI) and six airlines stock price (Air India, Go Air, IndiGo, Jet Lite, Jet Airways

and Spice Jet), during the study period from January 1, 2007 to November 30, 2018. The values of Pearson correlation for six airlines stock price, ranged from -0.0190 (Air India) to 0.0260 (Spice Jet), in respect of Brent. The values of Pearson correlation for six airlines stock price, ranged from -0.0200 (Air India) to 0.0320 (Spice Jet), in respect of Dubai. Similarly, the values of Pearson correlation for six airlines stock price, ranged from -0.0180 (Go Air) to 0.0200 (Jet Airways), in respect of WTI, during the study period. According to the Table 5, the values of Pearson correlation, for the returns of three crude oil price and six airlines stock price, were lesser than significant level, during the study period. The analysis of Pearson Correlation clearly indicated that there was no correlation between the three crude oil price (Brent, Dubai and WTI) and six airlines stock price (Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet), during the study period. Hence the Null Hypothesis (NH3), there is no correlation between returns of Crude oil price and Airlines Stock Price in India, was accepted. According to the results of Pearson correlation, three crude oil price and six airlines stock price did not influence significantly the sample airline, during the study period. Hence the three crude oil price and six airlines stock price were further analysed, by using the Granger Causality Test.

6.4. Granger Causality for the returns of Crude oil price and Airlines Stock Price in India

As stated earlier, this section proposes to test the Granger Causality for the returns of three crude oil price (Brent, Dubai and WTI) and six airlines stock price (Air India, Go Air, IndiGo, Jet Lite,

Table 3: Results of descriptive statistics of the three crude oil price and six airlines stock price from January 1, 2007 to November 30, 2018

Descriptive statistics	Crude oil			Airlines company					
	Brent	Dubai	WTI	Air India	Go Air	IndiGo	Jet Lite	Jet Airways	Spice Jet
Mean	-0.02	-0.01	-0.06	-0.03	-0.04	-0.01	-0.03	-0.03	-0.02
Median	0.04	0.00	0.00	0.03	0.00	-0.01	0.00	0.00	0.00
Max.	42.1	19.7	15.9	10.4	23.2	9.80	26.1	20.4	34.02
Min.	-21.4	-18.9	-15.4	-11.2	-21.2	-10.2	-16.2	-15.9	-26.8
Std. Dev.	2.90	2.44	2.45	1.77	3.40	1.93	2.88	2.79	3.46
Skewness	1.16	0.08	-0.04	-0.28	0.21	-0.48	0.312	0.33	0.32
Kurtosis	29.5	9.89	9.26	6.54	8.21	6.97	10.2	9.33	12.3
J-B	6050	4049	3336	1188	2223	1335	4451	3452	7360

Source: (<http://finance.yahoo.com/and> (<https://www.eia.gov/>) and Computed using E-Views 6 Version

Table 4: Results of ADF of the returns of three Crude oil price and Six Airlines Stock Price from January 1, 2007 to November 30, 2018

Company name	Statistical Value	Test critical value			P-value
		1%	5%	10%	
Crude Markets					
Brent	-54.9615	-3.4323	-2.86327	-2.5677	0.0001
Dubai	-54.873	-3.43454	-2.86327	-2.5677	0.0000
WTI	-52.6556	-3.43454	-2.86328	-2.5677	0.0000
Airlines Company					
Air India	-47.4837	-3.43454	-2.86327	-2.5677	0.0001
Go Air	-53.4835	-3.43454	-2.86327	-2.5677	0.0000
IndiGo	-48.2857	-3.43454	-2.86327	-2.5677	0.0000
Jet Lite	-51.4379	-3.43454	-2.86327	-2.5677	0.0001
Jet Airways	-54.9615	-3.43454	-2.86327	-2.5677	0.0000
Spice Jet	-47.4837	-3.43454	-2.86327	-2.5677	0.0000

Source: (<http://finance.yahoo.com/and> (<https://www.eia.gov/>) and Computed using E-Views 6 Version. Critical Value at 1%, 5% and 10% level of significance. ADF: Augmented dickey fuller

Jet Airways and Spice Jet) and each crude oil price was analysed, separately, against six airlines stock price, as follows.

6.4.1. Granger causality between the returns of Brent and Six Airlines stock price in India

The results of Granger Causality, for testing the casual linkages between Brent Crude oil price and six Airlines stock price (namely Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) in India, during the study period from January 1, 2007 to November 30, 2018, are displayed in Table 6. It is understood that out of six airlines Stock price, only three (3) airlines stock prices namely, IndiGo (\leftrightarrow), Jet Airways (\leftrightarrow) and Spice Jet (\leftrightarrow) recorded two way unidirectional casual relation (as per F-Statistics and P-value), with Brent crude oil price. Further, the remaining three Airlines Stock Price (namely Air India, Go Air and Jet Lite) had no causal relation with Brent Crude oil price. Hence, the Null Hypothesis (NH4), There is no causal relationship among returns of Crude oil price and Airlines Stock Price in India is partially accepted.

6.4.2. Granger causality between the returns of Dubai and Six airlines stock price in India

Table 7 reveals the results of Granger Causality test for the returns of Dubai Crude oil price and Six Airlines Stock Price (namely Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) in

India, during the study period from January 1, 2007 to November 30, 2018. It is understood that out of six Airlines Stock Price, only three (3) Airlines Stock Price namely Air India (\leftrightarrow), IndiGo (\leftrightarrow) and Jet Airways (\leftrightarrow) recorded two way unidirectional casual relation (as per F-Statistics and P-value) with Dubai Crude oil price. Further, the remaining three Airlines Stock Price (namely Go Air, Jet Lite and Spice Jet) had no causal relation with Dubai Crude oil price. Hence, the Null Hypothesis (NH4), There is no causal relationship among returns of Crude oil price and Airlines Stock Price in India is partially accept.

6.4.3. Granger causality between the returns of WTI and Six Airlines stock price in India

The results of Granger Causality test, for the returns of Dubai crudes oil price and six airlines stock price (namely Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) in India, during the study period from January 1, 2007 to November 30, 2018, are shown in Table 8. It is clear that except two airlines stock prices, namely Go Air and Jet Lite, the remaining four airlines stock price (namely Air India, IndiGo, Jet Airways and Spice Jet) recorded two way unidirectional casual relation (as per F-Statistics and P Value), with WTI crude oil price. Hence the Null Hypothesis (NH4), There is no causal relationship among returns of Crude oil price and Airlines Stock Price in India was partially accepted.

7. CONCLUSION

Due to the limited studies, pertaining to the crude oil price that affects the airlines stock price, the present study explored the causal relationship between the crude oil price and airlines stock price of the airline industry in India. The crude oil price fluctuation would lead to impact in the airlines cost (Modigliani and Cohn, 1979). The change in airlines cost would influence the cash in and out flows, and finally, influence the industry stock market price (Apergis and Eleftheriou, 2002). Indian economy is expected to consume an increasing share of the world's oil and become a larger player in the global financial markets. This present study analysed the relationship between three crude oil price (Brent, Dubai and WTI) and six airlines stock price (Air India, Go Air, IndiGo, Jet Lite, Jet Airways and Spice Jet) over the sample period in India. According to the ADF results, all the three crude oil price and six airlines stock price attained

Table 5: Results of Pearson correlation Statistics for the returns three Crude oil price and Six Airlines Stock Price from January 1, 2007 to November 30, 2018

Company name	Correlation	Brent	Dubai	WTI
Air India	Pearson Correlation	-0.0190	-0.0200	0.0120
	Sig. (2-tailed)	0.4870	0.2000	0.9190
Go Air	Pearson Correlation	-0.0140	-0.0120	-0.0180
	Sig. (2-tailed)	0.4030	0.3920	0.4580
IndiGo	Pearson Correlation	0.0200	0.0320	0.0130
	Sig. (2-tailed)	0.3490	0.2330	0.1990
Jet Lite	Pearson Correlation	0.0010	0.0030	-0.0110
	Sig. (2-tailed)	0.4660	0.4120	0.0550
Jet Airways	Pearson Correlation	0.0200	-0.0020	0.0200
	Sig. (2-tailed)	0.8730	0.9200	0.0450
Spice Jet	Pearson Correlation	0.0260	0.0030	0.0190
	Sig. (2-tailed)	0.9500	0.9700	0.7860

Source: (<http://finance.yahoo.com/and> (<https://www.eia.gov/>) and Computed using E-Views 6 Version. **Significant at the 0.01 level (2-tailed). *Significant at the 0.05 level (2-tailed)

Table 6: Results of granger causality for the returns of Brent Crude oil price and Six Airlines Stock Price from January 1, 2007 to November 30, 2018

Null Hypothesis	F-Statistic	Probability	Results
Brent Does Not Granger Cause Air India	1.1219	0.5931	Accept
Air India Does Not Granger Cause Brent	0.0013	0.5649	Accept
Brent Does Not Granger Cause Go Air	1.0014	0.2137	Accept
Go Air Does Not Granger Cause Brent	1.8253	0.7537	Accept
Brent Does Not Granger Cause IndiGo	0.4080	0.0360	Reject
IndiGo Does Not Granger Cause Brent	0.2828	0.0145	Reject
Brent Does Not Granger Cause Jet Lite	3.3280	0.6665	Accept
Jet Lite Does Not Granger Cause Brent	3.1402	0.1613	Accept
Brent Does Not Granger Cause Jet Airways	1.5438	0.0375	Reject
Jet Airways Does Not Granger Cause Brent	0.5712	0.0186	Reject
Brent Does Not Granger Cause Spice Jet	0.5224	0.0258	Reject
Spice Jet Does Not Granger Cause Brent	0.2666	0.0159	Reject

Source: (<http://finance.yahoo.com/and> (<https://www.eia.gov/>) and Computed using E-Views 6 Version. Null hypothesis was rejected when the probability value was less than 0.05

Table 7: Results of granger causality for the returns of Dubai Crude oil price and Six Airlines stock price from January 1, 2007 to November 30, 2018

Null Hypothesis	F-Statistic	Probability	Results
Dubai does not granger cause Air India	0.6513	0.0223	Reject
Air India does not granger cause Dubai	0.3725	0.0291	Reject
Dubai does not granger cause Go Air	2.6150	0.0753	Accept
Go Air does not granger cause Dubai	1.7433	0.1771	Accept
Dubai does not granger cause IndiGo	0.0129	0.0094	Reject
IndiGo does not granger cause Dubai	2.8509	0.0498	Reject
Dubai does not granger cause Jet Lite	0.6072	0.5457	Accept
Jet Lite does not granger cause Dubai	0.7184	0.4886	Accept
Dubai does not granger cause Jet Airways	1.7646	0.0036	Reject
Jet Airways does not granger cause Dubai	1.6358	0.0170	Reject
Dubai Does Not Granger Cause Spice Jet	1.3281	0.2669	Accept
Spice Jet Does Not Granger Cause Dubai	0.5426	0.5819	Accept

Source: (<http://finance.yahoo.com/and>) (<https://www.eia.gov/>) and computed using E-views 6 version. Null hypothesis was rejected when the probability value was >0.05

Table 8: Results of granger causality for the returns of WTI Crude oil price and Six Airlines Stock Price from January 1, 2007 to November 30, 2018

Null hypothesis	F-Statistic	Probability	Results
WTI does not granger cause Air India	1.7550	0.0131	Reject
Air India does not granger cause WTI	0.5965	0.0018	Reject
WTI does not granger cause Go Air	1.6161	0.1989	Accept
Go Air does not granger cause WTI	0.3741	0.6879	Accept
WTI does not granger cause IndiGo	0.7110	0.0412	Reject
IndiGo does not granger cause WTI	3.3639	0.0348	Reject
WTI t does not granger cause jet lite	0.7110	0.4912	Accept
Jet lite does not granger cause WTI	0.7679	0.0441	Reject
WTI does not granger cause jet airways	0.1010	0.0390	Reject
Jet airways does not granger cause WTI	1.6942	0.0139	Reject
WTI does not granger cause spice Jet	1.4750	0.0290	Reject
Spice Jet does not granger cause WTI	1.7646	0.0036	Reject

Source: (<http://finance.yahoo.com/and>) (<https://www.eia.gov/>) and computed using E-Views 6 Version. Null hypothesis was rejected when the probability value was <0.05

stationarity at 1%, 5% and 10% significance levels. It is found that out of six airlines stock price, majority of Airlines recorded two way unidirectional causal relation with crude oil price. Brent Crude reported strong unidirectional causal relation with Indigo, Jet Airways and Spice Jet. Dubai crude oil price also reported unidirectional causal relation with Air India, IndiGo, and Jet Airways. Finally, WTI crude oil price recorded unidirectional causal relation with four major airlines stock price, namely, Air India, IndiGo, Jet Airways and Spice Jet. The main conclusion of this study is that the movement of crude oil price reported causal relationship with airline stock prices in India. The findings of the present study would be guide to the market participants as it gives useful information about crude prices and its impact on stocks. Investors are advised create hedging policy, to mitigate their risk exposure. The result of the current study would be very useful to the various major airline ventures whose stocks are traded in India. Further, the results of the study would be beneficial to the market participants, who buy or sell or hold the stocks. In the same way, policymakers must pay attention the fluctuations in crude prices.

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