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THE IMPACT OF THE OPEC ANNOUNCEMENT ON THE OIL COMPANIES' SHARE PRICES

O Impacto do Anúncio da OPEP no Preço das Ações das Companhias de Petróleo

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ABSTRACT

Purpose: This study aims at verifying the negative impact of the announcement made by OPEC to maintain oil production - on March 5, 2020 - on the oil companies´ share prices in the main countries of Latin America and the BRIC´s.
Design/methodology/approach: Such objective is verified through an event whose final sample consists of 29 oil companies of Brazil, Chile, Colombia, Russia, India and China.
Findings: H1- OPEC announcement negatively affects the share price of oil companies- is not confirmed. However, H2 – OPEC announcement differently affects the share price of oil companies in Latin America and other emerging countries that make up the BRIC - is confirmed.
Research limitations/implications: The sample considers only oil companies operating in the oil and integrated gas segments, as well as oil and gas exploration and production.
Practical implications: These results expand the understanding of the impact of oil commodity price shocks on the share prices of oil companies in emerging countries, during the Covid-19 pandemic.
Originality/value: Verification of a positive shock impact on the supply or the reduction in the oil price on the return on shares of BRIC´s companies and among other Latin American countries, during Covid-19.

Keywords: OPEC announcement; Oil companies; Study of events; Mean difference test

RESUMO

Finalidade: Este estudo tem por objetivo verificar o impacto negativo do anúncio realizado pela OPEP para manutenção da produção de petróleo - em 5 de março de 2020 - no preço das ações das empresas petrolíferas dos principais países da América Latina e do BRIC.
Metodologia: Tais objetivos são verificados por meio de evento, cuja amostra final é composta por 29 empresas de petróleo do Brasil, Chile, Colômbia, Rússia, Índia e China.
Constatações: Não se confirma a H1 – O anúncio da OPEP afeta negativamente o preço das ações das empresas petrolíferas. Porém, a H2 – O anúncio da OPEP afeta diferentemente o preço das ações das empresas petrolíferas da América Latina e de outros países emergentes que compõem o BRIC é confirmada.
Limitações: São consideras na amostra apenas empresas petrolíferas que atuam nos segmentos de petróleo e gás integrado, bem como exploração e produção de petróleo e gás.
Implicações práticas: Esses resultados ampliam a compreensão do impacto dos choques do preço da commodity de petróleo nos preços das ações de companhias petrolíferas de países emergentes, durante a pandemia da Covid-19
Originalidade/valor: Verificação do impacto de um choque positivo na oferta ou da redução do preço do petróleo sobre o retorno das ações das empresas do BRIC e entre demais países da América Latina durante a Covid-19.

Palavras-chaves: Anúncio da OPEP; Companhias de petróleo; Estudo de eventos; Teste de diferença de médias

1 INTRODUCTION

The oil industry has been vital to other global economies since the 19th century. Notwithstanding the growth of renewable energy sources, oil remains the main source of the world energy matrix at the beginning of the 21st century. In view of the role played by this commodity, fluctuations in its price cause crises impacting not only the markets of producing countries, but also the importers´. That´s why both governments and investors are interested in the extension of the oil price volatility to make the best policy and investment decisions (Barros & Pinto, 2010; Seghal & Kapur, 2012; Ribeiro, Alba Neto & Sene, 2018; Resende & Pedro, 2020).

It happens that on March 5, 2020, the Organization of Petroleum Exporting Countries (OPEC) convenes an extraordinary meeting (n.178) with the presence of (non) member countries. OPEC recommends reducing daily oil production from 1.5 to 1.0 million barrels by June 30, 2020 - for OPEC member countries - and to 0.5 - for non-OPEC member countries (OPEC n.3, 2020). The purpose of the meeting was to find actions to help balance the commodity market due to the paralysis of the world economy caused by the proliferation of the new coronavirus - Covid-19 (New York Times, 2020). However, after Russia's refusal to follow this recommendation, OPEC suggests the extension of the daily production duration of 1.5 million barrels until the end of 2020 (OPEC n.4, 2020).

The maintaining of the supply in the same amount of oil production, in face of the reduced demand, causes a drop in the price of the barrel of Brent oil from US$ 51.29 on March 5, to US$ 45.60 on March 6 and to US$ 35.33 on March 9. Between March 5 and 9, 2020, the price of the oil commodity reduces by 31.12%. On April 21, 2020, the Brent barrel is priced at US$ 19.33. Though, initially, the expectation was that the demand for oil had not fallen so drastically, since oil is also the raw material of some types of solvents, industrial lubricants and plastic, like many of the pharmaceutical and nursing products, needed to fight coronaviruses (New York Times, 2020).

In practice, this OPEC´s communication characterizes a positive supply shock, causing the reduction in the commodity price (Bina & Vo, 2007; Sehgal & Kapur, 2012). However, the impact of the oil price drop affects countries, industries and companies in different ways. Developed countries - like the United States of America (USA) - are better prepared to face the impact of the drop in oil

prices, since they have been heavily invested in renewable or alternative - shale - energy sources. Thus, crises in the supply, demand and price of oil have less power to destabilize their economies, compared to developing countries or to the ones that depends on this single export product (Campos & Camacho, 2014).

Therefore, the collapse in the price of the oil commodity is more critical to Latin American countries and state oil companies that are ponderously depending on the revenues of this product - Brazil, Chile, Colombia and Mexico. In the last 10 years (2010-2019), revenues from the oil sale are higher than its production costs. The average of the relationship between this positive margin and the Gross Domestic Product (GDP) happens to be systematically higher for Latin American countries (2.6%) than those for the whole world (1.8%). This fact denotes the relevance of oil production for the region (World Bank, 2020). Thus, a drop in the oil commodity price directly affects the government's dollar reserves, limiting its resources in stimulating the post-crisis economy generated by the Covid-19 pandemic.

This being so, this study aims to answer the following questions: OPEC´s announcement - that took place at the extraordinary OPEC meeting no. 178/2020 on March 5, 2020 - negatively impacted the share price of Latin America and BRIC´s oil companies (H1)? Besides, this supposed reduction in the share price of oil companies is similar for both clusters - Latin American countries and other emerging countries that make up the BRIC (H2)? The verification of these hypotheses is carried out through an event study. The final sample consists of 29 oil companies of Brazil, Chile, Colombia, Russia, India and China, whose trading data are obtained during the period of the windows shown in Figure 2. The data are obtained from the base of Capital IQ.

2 LITERATURE REVIEW

From the 20th century, oil becomes the main energy source in the world economy. Since then, its price volatility has been increasing, raising concerns mainly for its exporting countries. Currently, more than half of the countries in the world and two thirds of the developing countries are dependent on commodities. Among those most dependent on oil exports are Iran, Iraq, Nigeria, Oman, Qatar, Saudi Arabia, United Arab Emirates and Venezuela (Resende & Pedro, 2019; Unctad, 2019).

The fluctuations in the oil price stream mainly from the successive political crises that have as their main location the countries of the Middle East. The crises that occurred during the 20th century basically refer to supply shocks, resulting from political or commercial issues. A positive shock in the oil supply is characterized by an increase in production, which proves a drop in the commodity price. In turn, the occurrence of a negative shock in the oil supply occurs when there is a reduction in its production, which causes an increase in the barrel price (Bina & Vo, 2007; Sehgal & Kapur, 2012).

In response to price volatility and dependence on oil, countries like the United States, China and Australia intensify the exploration of oil and shale gas, by fractionating their bituminous rock. In the case of the United States, exploration begins in 2000. Its gas reserve is sufficient to supply the country for more than 100 years. Such a fact is reducing fuel prices in the USA and impacting world markets (Arezki, Fetzer & Pisch, 2017; Marschner & Ceretta, 2018).

However, although many oil wells and shale gas offer high initial production, it falls vertically after the first or second year. If companies are unable to pay their debts at this initial peak, they end up by having much more financial difficulties in the following years. They start to channel a large part of their revenues to the payment of debts. Currently, the shale industry in the United States is excessively leveraged (Azar, 2017).

The year 2020 begins with the Corona virus pandemic (Covid-19). With its advance, the productive chains of international trade are impacted by the reduction of world consumption. Thus, the oil industry suffers a demand shock, which causes a commodity price reduction. On March 5 and 6, 2020, OPEC meets with Russia without reaching an agreement to cut production and contain oil prices fall. In retaliation for Russia's position, the Saudi Arabian Ministry of Energy informs on March 17, 2020 that oil exports are expected to increase in the following months to over 10 million barrels per day. In practice, the announcement for the production maintenance by OPEC characterizes a positive shock in the oil supply, despite the reduced demand resulting from Covid-19 (New York Times, 2020; OPEC n.3 and n.4, 2020).

This sequence of facts further reduces the oil barrel price, which causes a market price devaluation of the oil producing companies and a financial impact to the gas and shale oil producing companies, mainly in the United States. The impact of the oil prices reduction and Covid-19 on the US economy has prompted the White House to consider offering federal assistance to oil and natural shale gas producers. Between December 2019 and April 2020, the price of Brent-type oil barrel drops from US$ 63.35 to US$ 19.33 (Washington Post, 2020).

The volatility of the commodity price impacts the oil producing and consuming companies´ share price. Among the aspects influencing the share price is the informational asymmetry that represents a friction to efficient markets. According to Belo and Brasil (2006), market informational asymmetry is understood as a phenomenon in which some economic agents (companies, stock fund managers, insiders, outsiders, etc.) have more information than others. The amount and quality of information held by these insiders, before the fact happens, are different from the other parties. This allows the entrepreneur to know the business to be invested more deeply than the buyer. Thus, he uses this information in his favor to obtain more resources or returns on investment (Arkelof, 1970). Outsiders, on the other hand, seek to find information signals issued by managers to support their investment decisions. However, since they do not have privileged information, they end up by depending on the market or on insiders´ influences (Healy & Palepu, 2001).

Two types of problem may occur in an informational asymmetry scenario (Arkelof, 1970; Spence, 1973; Stiglitz, 1981, 2000): a) Adverse selection or information problems: it occurs when a party of the market cannot see the type or quality of goods and services issued or at disposition in the other party. This problem may cause the capital market to lose its role of facilitating the allocation of resources between economic agents, and b) Moral risk or agency problems: it occurs when one party of the market cannot see the action of the other party. This problem arises because, generally, outsiders do not have the right information, do not make decisions or do not have the power to control the decision maker´s attitudes.

Capital markets in different countries have different degrees of development, which may cause information asymmetry. In this case, the information is not reflected immediately in the share price. Thus, the speed of the reaction for a given information in developed markets may be different, when compared to markets still in development. This fact can be seen by the difference in the volume traded among the markets, the degree of concentration of the shares traded and the existence of protection mechanisms for the minority shareholder.

Since there are more developed markets than others, it may happen that these markets incorporate the effect of information in their prices more efficiently. In addition, there is the possibility that different markets, for example, the stock market and the one of commodities - such as the oil commodities- have different users who may affect the speed of information absorption in each market. This way, price movements of market assets with different users or even of a more developed market may precede the price movements of a less developed market, if they are partially integrated

(Silva, 2011).

The existence of informational asymmetry is opposed to the hypothesis of market efficiency (HME), which presupposes that new information is accompanied by the analysis of speed, quality, direction and magnitude of asset price adjustment. HME assumes that the price of an asset is directly reflected in the available information about the issuing company, thus preventing abnormal gains. The speed of issuing information on the market, depending on being faster or slower, may affect the price of this asset (Mussa, Yang, Trovão, & Famá, 2008). Fama (1970, 1991, 1998) states that, when prices always reflect the information available in the market, this market can be considered as efficient. In addition, the author separates the informational efficiency of the market into three levels - weak, semi-strong and strong. The strong level does not characterize efficiency of market.

In contrast, for Ross, Westerfield, Jaffe & Lamb (2015), the idea of efficient markets is considered as those in which prices reflect the present value of the securities and there are not, necessarily, conditions for obtaining abnormal returns by using published and available information. For them, HME implies that only new information immediately reflects the price of assets. Thus, both investors and issuers should expect to receive the present value from the asset sales.

The efficiency with which stock exchanges process information has been the subject of study for several decades. If the predictions of share price or return rate cannot be improved with the use of other information, arguable is that the stock market is already using all the private information available in the formation of these prices. Therefore, expecting the stock market to absorb information about the consequences of an oil price shock and to incorporate it quickly into asset prices is reasonable. Since asset prices are the present value discounted from companies' future net earnings, the current and future impacts of this shock must be absorbed in prices and returns (Bjornland, 2009).

Table 1 presents the results of studies related to the impact of a shock on oil supply or price on the return on companies' shares. The positive shocks in the oil supply refer to the increase in production, which causes a reduction in the commodity price.

Table 1 – Summary of the results of international event studies

Description	**Aggarwal, Akhigbe and Mohanty (2012)**		**Sehgal and Kapur (2012)**		**Hall and Kenjegaliev (2017)**		**Sonenshine and Cauvel (2017)**		**Tsai and Chen (2018)**	
Sample companies industry	**Transportation**		**Stock index**		**Oil producers**		**Oil producers**		**Transportation**	
Impact on oil prices	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW
Expected AR / CAR signs	-	+	-	+	+	-	+	-	-	+
AR / CAR Sign and Significance	+/10 %	+/1%	-/NS	+/5%	+/NS	-/NS	-/NS	-/1%	-/NS	+/1%

Notes: AR: Abnormal Returns, CAR: Cumulative Abnormal Returns and NS: No statistical significance

Table 2 presents the windows for the event studies of the mentioned empirical works. Considering most of them, for the purposes of this study, the windows adopted for trading days are: a) estimation -60 to -2, b) event -1 to +1 and c) post-event +2 to +20.

Table 2 – Event study windows

Windows	Aggarwal, Akhigbe and Mohanty (2012)	Sehgal and Kapur (2012)	Hall and Kenjegaliev (2017)	Sonenshine and Cauvel (2017)	Tsai and Chen (2018)
Periods	Trading days	Weeks	Trading days	Trading days	Trading days
Estimation	-120 to -12 -120 to -2 -120 to -1 -120 to +1	-65 to -14	-20 to -1	-60 to -11	-260 to -11
Event	−11 to −2 -1 to +1 0 to +1 +2 to +10 -11 to + 1	-13 to +13	0	-10 to +5 -10 to +10 -10 to +20 -10 to +30	-10 to +10
Post-event	N/A	+14 to +27	+1 to +20	N/A	N/A

Note: N/A: Not available

3 METHODOLOGY

This work aims at verifying the negative impact of the OPEC announcement on the share price of the main oil companies in Latin America. In addition, also intended is to analyze whether this reduction in the share price is similar to that occurred in the oil companies of other emerging countries that make up the BRIC - Russia, India and China. Thus, the hypotheses arising from these objectives are: H1 - The OPEC announcement negatively affects the oil companies´ share price and H2 - The OPEC announcement differently affects the share price of oil companies in Latin America and other emerging countries that make up the BRIC.

H1 - The OPEC announcement negatively affects the oil companies´ share price - is verified through an event study. According to Campbell, Lo and Mackinlay (1997) and Mackinlay (1997), the event study steps are presented in Figure 1:

Figure 1- Event study steps

Source: Campbell, Lo and Mackinlay, 1997, p. 151.

a) Event definition - The analyzed event refers to OPEC announcement no.4, which took place on March 5, 2020, proposing the maintenance of the same amount of oil production until the end of 2020.

b) Selection criteria - From the Capital IQ database, publicly traded companies are identified which operate in the primary industrial sectors of Oil and Integrated Gas or of Oil and Gas Exploration and Production in the Latin American countries and other countries of BRIC - Russia, India and China. From these companies are excluded those not having daily trading sessions in the period of the windows of this study - see Figure 2 - and that present beta statistically equal to zero. Thus, the final sample is made up of a total of 29 companies, being 4 Brazilian, 1 Chilean, 1 Colombian, 11 Russian, 5 Indian and 7 Chinese.

c) Abnormal and normal returns - The existence of abnormal returns is observed as being the most significant point in concluding something about the impact of the event on the company's

share price. The abnormal return on a share is represented by Equation 1 (Campbell et al., 1997):

$$AR_{it} = R_{it} - E(R_{it}) \quad (1)$$

In which:
AR_{it} = abnormal return on assets
R_{it} = observed return for company "i",
$E(R_{it})$ = expected return and "t" is the time of the event.

The methodology for calculating normal returns presents two measurement ways, the traditional and the logarithmic ones. Logarithmic measurement is the most appropriate because it provides a better composition in the normal distribution of returns, in face of the parametric testing procedure. In addition, through it, to add the profitability of the different periods is possible, in order to obtain the total return. Finally, in logarithmic measurement, market information is assumed to happen all the time and that shares react continuously to this information (Fama, 1970; Campbell et al., 1997). This return is obtained through Equation 2:

$$P_t = P_{t-1}\, e^r \quad (2)$$

In which:
P_t = share price in period "t"
P_{t-1} = share price in the previous period
e = 2.718281
r = return rate

In turn, the calculation of the observed real return is given by Equation 3:

$$R_{it} = \ln (P_{it}/P_{it-1}) \quad (3)$$

In which:
R_{it} = return of asset "i" on date "t", transformed by the Neperian logarithm (NL)
P_{it} = closing nominal quotation of the asset on date "t"
$P_{i,t-1}$ = closing nominal quotation of the asset "i" on date "t-1".

According to Campbell et al. (1997), the expected return is obtained through the market model, which relates the share return to the return of the market portfolio. This return can be understood through Equation 4:

$$E(R_{it}) = \alpha_i + \beta_i RM_t + \varepsilon_{it} \quad (4)$$

In which:
$E(R_{it})$ = expected return of an asset "i" at time "t"
RM_t = market return in the period "t" of the main stock exchange index for each country (Brazil - Ibovespa, Chile - IPSA, Colombia - Colcap, China - Shanghai, India - Sensex, Russia - Moex)
α_i and β_i = market model parameters of the asset "i"
ε_{it} = econometric equation error of the asset "i" at time "t".

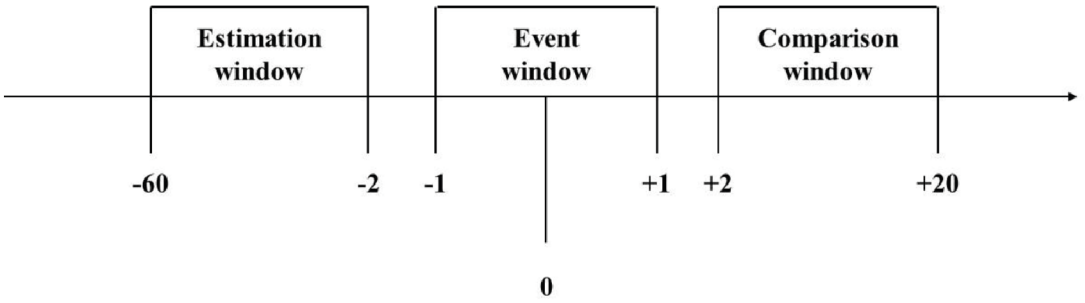
In turn, the cumulative abnormal return (CAR) model is calculated by the simple sum of all the abnormal logarithmic returns contained in an event window, according to Equation 5:

$$CAR_i\,(t_1 > t_2) = \sum_{t_1}^{t_2} AR_{it} \quad (5)$$

In which:
CAR_i = cumulative abnormal return of asset "i"
t_1 = first day of the event window
t_2 = last day of the event window
AR_{it} = abnormal return of asset "i" in period "t"

d) Estimation procedure - For the estimation of the returns mentioned, the windows shown in Figure 2 are considered. The periods shown are based on Table 2 of this study. The option for short intervals streams from the need not to consider other events that may impact the effect of the OPEC announcement of March 5, 2020 (OPEC n.4, 2020).

Figure 2 - Event study windows



The estimation window comprises the period for calculating the expected or normal share returns before the event window, comprising 59 trading sessions (-60 to -2). Note that the estimation window must not overlap the event window lest it influences the parameters and must be extensive enough for possible discrepancies in the returns to be diluted, without causing major changes in its frequency distribution (Campbell et al., 1997).

In turn, the event window consists of 3 trading sessions before and after the announcement (-1, 0 and +1). The dividend distribution announcement event occurs on the zero date. The study of the return behavior of the trading session before the zero date aims at gathering evidence of the use of illegal privileged information, while the study of the behavior in the trading session after the zero date aims at observing the capital market reaction to the occurrence of the event. At last, the comparison window consists of 19 trading sessions (+2 to +20), after the event window. Its purpose is to verify whether or not returns continue showing abnormal behavior after the event window.

Test procedure - The test procedure considers the following steps: I) First, the closing prices of the sample shares are collected, during the period of the estimation window, to calculate their return; II) After obtaining these data, the expected returns are projected into the event and comparison windows, using Equation 4. The real returns of the assets in those very windows are obtained through Equation 3; III) Subsequently, the ARs and CARs are calculated for the event and comparison windows; IV) After obtaining these returns, the normality of both distributions is verified, using the Shapiro-Wilk (SW) test, whose null and alternative hypotheses are: H0: the distribution is normal and Ha: the distribution is not normal (Siegel & Castellan Jr., 2017); V) In case the distribution is normal, the Student's test of difference of means "t" between the real and expected return on assets - AR and CAR, with a significance level of 5% is used. However, if the distribution is not normal, the Wilcoxon-Mann-Whitney non-parametric test is used (Anderson, Sweeney, Williams, Caam, J & Cochran, 2019; Siegel & Castellan Jr., 2017).These tests aim at verifying the statistical significance of these differences or abnormal returns, whose hypotheses are: H0: the means are equal and Ha: the means are different.

As for H2 - The OPEC announcement differently affects the share price of oil companies in Latin America and other emerging countries that make up the BRIC - it is verified through a mean difference test between the ARs and CARs of the following subsamples of oil companies: a) Latin

American countries - Brazil, Chile and Colombia and b) other emerging countries that make up the BRIC - Russia, India and China.

For that, initially, the shares whose CARs are statistically different from zero are identified. The use of CAR becomes more suitable for analyzing results, since there are difficulties in determining the date when the market effectively absorbs the information of the event under study. Then, the arithmetic average of the comparison window trading sessions (+2 to +20) of both groups is calculated. The difference is determined and whether or not the distribution is normal is verified. Being normal, the mean difference test applied is the t-test. Otherwise, the Wilcoxon test is applied.

4 ANALYSIS OF RESULTS

Table 3 shows the arithmetic average of abnormal (ARs) and cumulative (CARs) returns, for each of the 22 trading sessions of the 29 analyzed shares, with 3 and 19 trading sessions for the event and comparison windows, respectively. In the case of ARs, 9 positive and 13 negative results are identified. In the case of CARs, there is 1 positive result and 21 negative results, which partially corroborates the study's H1 - The OPEC announcement negatively affects the oil companies' share price.

Table 3 – Arithmetic average of the ARs and CARs of the shares in the event and comparison windows

Trading sessions	Window	ARs	CARs
-1	Event	-0.001140	-0.001140
0	Event	0.003210	0.002070
1	Event	-0.011879	-0.009809
2	Comparison	-0.070685	-0.080495
3	Comparison	-0.000216	-0.080711
4	Comparison	-0.000990	-0.081701
5	Comparison	-0.027020	-0.108721
6	Comparison	-0.006821	-0.115541
7	Comparison	0.020454	-0.095087
8	Comparison	-0.003396	-0.098483
9	Comparison	-0.020908	-0.119391
10	Comparison	0.019721	-0.099671
11	Comparison	0.020265	-0.079406
12	Comparison	-0.000691	-0.080097
13	Comparison	-0.020894	-0.100992
14	Comparison	0.005657	-0.095335
15	Comparison	-0.009700	-0.105035
16	Comparison	0.015696	-0.089339
17	Comparison	-0.006210	-0.095549
18	Comparison	0.025293	-0.070257
19	Comparison	0.018278	-0.051979
20	Comparison	0.030440	-0.021539

The p-value of the ARs and CARs in Table 4 indicates that among the 29 companies in the final sample, 21 have normal distribution and 8 non-normal. In both tables, the level of significance of the tests is 5% for the returns of the 22 trading sessions, with 3 and 19 trading sessions for the event and comparison windows, respectively.

Table 4 – Shapiro-Wilk normality test of ARs and CARs in event and comparison windows

Country-Ticker	Name	ARs	CARs	Country-Ticker	Name	ARs	CARs
BR-DMMO3	Dommo Energia	**0.589**	**0.135**	IN-ONGC	Oil and Natural Gas	**0.079**	**0.075**
BR-ENAT3	Enauta Participações	**0.369**	**0.601**	IN-OIL	Oil India	**0.054**	**0.071**
BR-PETR4	Petróleo Brasileiro	0.002	0.000	IN-530075	Selan Exploration Technology	**0.266**	**0.119**
BR-PRIO3	Petro Rio	**0.535**	**0.680**	RU-BANE	Bashneft	0.002	**0.074**
CH-GPRK	GeoPark	0.023	0.001	RU-GTLC	Gas To Liquid	0.000	0.000
CN-600856	Changchun Sinoenergy	0.011	**0.950**	RU-GAZP	Gazprom	0.000	0.019
CN-386	China Petroleum & Chemical	**0.240**	**0.635**	RU-SIBN	Gazprom Neft	**0.507**	**0.457**
CN-600759	Geo-Jade Petroleum	0.000	**0.223**	RU-NVTK	Pao Novatek	0.035	**0.083**
CN-600256	Guanghui Energy	**0.136**	0.019	RU-LKOH	Lukoil	**0.056**	**0.402**
CN-857	PetroChina	**0.227**	**0.691**	RU-TATN	Tatneft	**0.058**	0.003
CN-600777	Shandong Xinchao Energy	**0.817**	**0.573**	RU-ROSN	Rosneft	**0.221**	**0.223**
CN-600617	Shanxi Guoxin Energy	**0.511**	**0.219**	RU-ROSN STA	Rosneft Stavropolneftegaz	**0.221**	**0.223**
CO-ECOPETROL	Ecopetrol	**0.468**	0.021	RU-MFGS	Slavneft-Megionneftegas	**0.912**	**0.555**
IN-GEEC	Great Eastern Energy	**0.921**	**0.369**	RU-SNGS	Surgutneftegas	**0.323**	**0.091**
IN-500186	Hindustan Oil Exploration	**0.471**	0.003				

Notes: Values in bold refer to normal distributions, at 5% significance level; BR - Brazil; CH - Chile; CN - China; CO - Colombia; IN - India; RU - Russia.

Tables 5 and 6 show the results of the mean difference tests of the ARs and CARs, respectively. For shares with normal distribution, the t-test is applied. For non-normal distributions, the Wilcoxon non-parametric test with signs is applied. The significance level of the tests is 5%.

In Table 5, the 29 shares have ARs statistically equal to zero. In turn, Table 6 indicates that among the 29 shares, 8 have negative and positive CARs - statistically different from zero - at the 5% level of significance. Finally, 13 shares have means statistically equal to zero.

Such results do not allow definitive confirmation of H1 - The OPEC announcement negatively affects the oil companies´ share price.

Table 5 – Mean difference test of ARs in event and comparison windows

Country - Ticker	Test	Difference	P-value	Country - Ticker	Test	Difference	P-value
BR-DMMO3	t-test	-0.0149	0.6503	IN-ONGC	t-test	0.0022	0.9242
BR-ENAT3	t-test	0.0106	0.7781	IN-OIL	t-test	0.0119	0.6542
BR-PETR4	Wilcoxon	-0.1170	0.9066	IN-530075	t-test	-0.0016	0.9331
BR-PRIO3	t-test	-0.0054	0.9108	RU-BANE	Wilcoxon	0.5160	0.6056
CH-GPRK	Wilcoxon	0.9390	0.3478	RU-GTLC	Wilcoxon	-0.2580	0.7962
CN-600856	Wilcoxon	1.5960	0.1104	RU-GAZP	Wilcoxon	-0.2110	0.8327
CN-386	t-test	0.0014	0.8756	RU-SIBN	t-test	-0.0000	0.9956
CN-600759	Wilcoxon	-0.2350	0.8144	RU-NVTK	Wilcoxon	-0.2350	0.8144
CN-600256	t-test	0.4230	0.6726	RU-LKOH	t-test	0.0033	0.8573
CN-857	t-test	0.0013	0.9099	RU-TATN	t-test	0.0020	0.9200
CN-600777	t-test	0.0001	0.9759	RU-ROSN	t-test	-0.0044	0.8513
CN-600617	t-test	-0.0016	0.7922	RU-ROSN STA	t-test	-0.0044	0.8513
CO-ECOPE TROL	t-test	-0.1290	0.8973	RU-MFGS	t-test	-0.0018	0.8723
IN-GEEC	t-test	0.0005	0.9700	RU-SNGS	t-test	0.0089	0.6411
IN-500186	t-test	-0.0172	0.3917				

Notes: BR – Brazil; CH – Chile; CN – China; CO – Colombia; IN – India; RU – Russia.

Table 6 – Mean difference test of CARs in event and comparison windows

Country - Ticker	Test	Difference	P-value	Country - Ticker	Test	Difference	P-value
BR-DMMO3	t-test	-0.2277	**0.0067**	IN-ONGC	t-test	-0.0461	0.2690
BR-ENAT3	t-test	0.1366	**0.0409**	IN-OIL	t-test	0.1275	**0.0183**
BR-PETR4	Wilcoxon	34.500	**0.0006**	IN-530075	t-test	-0.1009	**0.0464**
BR-PRIO3	t-test	-0.2997	**0.0035**	RU-BANE	t-test	-0.0969	**0.0007**
CH-GPRK	Wilcoxon	47.180	**0.0000**	RU-GTLC	Wilcoxon	25.820	**0.0098**
CN-600856	t-test	10.090	0.3128	RU-GAZP	Wilcoxon	0.0960	**0.0002**
CN-386	t-test	-0.0692	**0.0000**	RU-SIBN	t-test	-0.0708	0.0553
CN-600759	t-test	0.0698	**0.0000**	RU-NVTK	t-test	0.0181	0.6513
CN-600256	Wilcoxon	13.150	0.1886	RU-LKOH	t-test	-0.0040	0.8944
CN-857	t-test	-0.1296	**0.0000**	RU-TATN	Wilcoxon	11.970	0.2313
CN-600777	t-test	0.0000	0.9971	RU-ROSN	t-test	-0.1422	**0.0073**
CN-600617	t-test	0.0257	0.1267	RU-ROSN STA	t-test	-0.0142	**0.0073**
CO-ECOPE TROL	Wilcoxon	17.140	0.0866	RU-MFGS	t-test	-0.0186	0.4410
IN-GEEC	t-test	0.0014	0.9655	RU-SNGS	t-test	0.0743	0.0716
IN-500186	Wilcoxon	37.790	**0.0002**				

Notes: Values in bold refer to statistically different means, at 5% significance level; BR - Brazil; CH - Chile; CN - China; CO - Colombia; IN - India; RU - Russia.

Failure to confirm H1 is related to HME. Despite OPEC's announcement to maintain production (OPEC no.4, 2020), the market finds that - in practice - there is a reduction in demand for oil in the world due to Covid-19. The disclosure of this information leads to the prediction by the oil companies about a non-increase in their sales revenue and a higher storage cost, which may not generate abnormal positive returns. This result is in line with those obtained by Hall and Kenjegaliev

(2017) and Sonenshine and Cauvel (2017)´s studies. Faced with positive oil supply shocks, these authors do not obtain statistically significant positive CARs.

Finally, Table 7 presents the mean difference test between the samples of companies in Latin America and other BRIC countries, which have a CAR other than zero. The distribution of the mean difference is not normal. Therefore, the Wilcoxon non-parametric test is used. In the case of Latin America, there are 5 shares whose companies are 4 from Brazil and 1 from Chile. For the other BRIC countries, there are shares of 11 companies, with 5 from Russia, 3 from India and 3 from China. This test confirms H2 - The OPEC announcement differently affects the share price of oil companies in Latin America and other emerging countries that make up the BRIC.

Table 7 – Mean difference test of CARs between Latin American countries and other BRIC countries

Two-sample Wilcoxon rank-sum (Mann-Whitney) test			
Sample	**Observation**	**Rank sum**	**Expected**
LA	22	304	495
BRIC	22	686	495
Combined	44	990	990
Z	**-4.483**	**Prob > |z|**	**0.0000**

Notes: LA – Latin America and BRIC – Other BRIC countries, except Brazil

H2 confirmation ratifies the existence of informational asymmetry between markets with different development levels. More dependent countries on oil exports are more impacted than those having a more diversified export matrix. Another aspect that distinguishes them is the relevance and reaction of the local consumer market, in view of the measures to combat Covid-19 adopted by their governments.

5 CONCLUSION

Shocks in oil barrel price have been occurring since the 1950s, causing a break with the countries' economic growth process. Positive shocks in its supply cause an increase in production, which prove a drop in the commodity price. Negative shocks in oil supply occur when there is a reduction in production, which causes an increase in the barrel price. On March 5, 2020, OPEC convenes an extraordinary meeting in which it recommends the maintenance of daily oil production, after Russia's disagreement to reduce it. In practice, due to the paralysis of the world economy caused by the proliferation of Covid-19, this announcement is characterized as a positive shock in the oil supply.

Thus, this study aims at verifying the negative impact of the announcement that took place at the OPEC extraordinary meeting (OPEC n.4, 2020) - on March 5, 2020 - on the share prices of oil companies in the main countries of Latin America and the BRIC´s (H1). In addition, it intends to analyze whether this reduction in the share price is similar to that occurred in the oil companies of the main countries of Latin America and the other emerging countries that make up the BRIC (H2). The verification of these hypotheses is carried out through an event study. The final sample consists of 29 oil companies of Brazil, Chile, Colombia, Russia, India and China. The data are obtained from the Capital IQ base.

Tables 5 and 6 do not allow confirmation of H1 - The OPEC announcement negatively affects the oil companies´ share price, contrary to the result of other empirical studies presented in Table 1. In the 20 trading sessions following the OPEC announcement - despite the drop in the commodity price (-2.19%) and small increase in production (7.76%) - the market does not price the

oil companies´ shares, considering the existence of a permanent positive shock in the oil supply. It understands that - in practice - the pandemic causes a negative shock to oil demand. Therefore, the investors´ perception is that such a fact, associated with the high costs of stocking the commodity, causes companies to be forced to reduce their production until the end of the pandemic, recovering the barrel price (CIQ, 2020).

As for Table 7, it allows to confirm H2 - The OPEC announcement differently affects the share price of oil companies in Latin America and other emerging countries that make up the BRIC. The means of the CAR of both groups are statistically different from zero.

Capital markets in different countries have different development degrees, which may cause information asymmetry. In this case, the information is not immediately reflected in the share price. In addition, there is a possibility that different markets - stock and commodities - have different users who may affect the speed of information absorption in each market.

These results expand the understanding of the impact of oil commodity price shocks on the share prices of oil companies in emerging countries, during the Covid-19 pandemic. As for the limitations of this study, only oil companies operating in the oil and integrated gas segments, as well as oil and gas exploration and production are considered in the sample. In addition, 13 companies with no daily quotation on the stock exchange are excluded, reducing the sample from 42 to 29 companies. Finally, for the purpose of evolving this topic, to investigate the following questions is suggested: Does the sensitivity of the oil sector differ in markets with different economic levels? What is the effective relevance of OPEC in oil supply and pricing? Assuming the constant presence of new pandemics, what is the impact of this new scenario on the demand and supply of alternative fuel sources?

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