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The relationship between oil and stock prices: The case of developing and developed countries

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Abstract. *This research examines the relationship between oil prices and stock market indices of developed and developing countries. All analyses in this study were performed with the monthly data of December 1992 – April 2016 period. The long-term relationship between stock market indices and oil prices was examined by Pedroni Panel Cointegration analysis. Dumitrescu-Hurlin (2012) causality test examines the direction of the relationship between oil prices and long-run markets. According to the findings, there is a long-term relationship between stock exchanges in developing countries and oil prices, and there is a two-way causality between stock prices and oil prices. However, in developed country stock markets, the causality relation is one way and it is correct to oil prices from stock prices.*

Keywords: oil price, developed stock exchange, developing stock exchange, causality relationship.

JEL Classification: C23, G11, G15, O13.

1. Introduction

Utilization of energy sources in the world ranges as oil by 37%, coal by 27%, natural gas by 24%, hydroelectric by 6%, and nuclear energy by 6% (EIA, 2014). Accordingly, oil is the most used primary energy source in the world. These energy sources are consumed in industry, housing, service and transportation activities most. When we regard that energy sources are consumed in industry sector most, it is expected that the changes in oil prices influence the profitability of the sector and therefore, this reflects on stock prices. Stock prices state the sum of today's reduced values of cash flows that are expected to be obtained in the future. The increase in oil prices in the sectors where oil is used as input causes also the increase in production costs. Increasing production costs decrease the cash flows of companies. As a result of this, stock prices of the company decrease. Also increasing oil prices cause an increase in interest rates. While increasing interest rates increase bills and bonds investments, they decrease the demand for stocks. As a result of this, stock prices decrease. However, high oil prices affect oil producing and consuming companies in the world differently. When it is considered that the number of oil consuming companies is more than the producing ones, the effect is expected to be negative (Basher and Sadorsky, 2006). The cost of energy source influences the profitability of the company and trade price of the share in exchange market. For that reason, knowing the relationship between the prices of energy sources and exchange market prices is highly important for investors. At that point, the reflections of the changes in oil prices with the oil shock in 1973 to the economy of the countries have become a focus for both theoreticians and applicants.

The effect of oil prices on share market was firstly analyzed by Jones and Kaul (1996) and Huang, Masulis and Stoll (1996). Jones and Kaul indicated that the change in oil prices had negative effects on actual share earnings in the USA, Canada, Japan and England. However, Huang, Masulis and Stoll (1996) indicated that the changes in oil prices had a high correlation with the change in US share prices. There are lots of studies analyzing the effect of oil prices on share prices on the basis of certain countries. However, the concept of national border in the world lost its validity for countries with the globalization phenomenon. All economies in the world are directly or indirectly influenced by each other or they influence each other. As a result of the analysis in current literature, the effect of the changes in oil prices on stock market prices, an important economic indicator, was not analyzed comprehensively by dealing the developed and developing countries together. Since the developed and developing countries have different economic Dynamics, their responses to the oil prices also vary. The responses of developed and developing countries to the oil prices in their stock markets are analyzed in two different groups in also this study. Therefore, the responses of countries to oil prices according to their economic development levels are evaluated separately. In accordance with these obtained data, revealing non-homogeneous responses of different countries according to their development levels to the oil prices is highly important in terms of portfolio risk management (Li et al., 2012). Oil price movements and the relationship between share prices for the developed and developing countries in the world are analyzed in also this study. For that purpose, Brent oil prices in the period from 12:1992 to 04:2016 and monthly closing prices of exchange market indices obtained from MSCI for the developed and developing countries were used as data set. Accordingly, index closing prices for forty

different share markets in the world and the long term relationship between Brent oil prices were analyzed through Pedroni Panel Cointegration test. However, the direction of causality between oil prices and share markets with long term relationship was analyzed through Dumitrescu-Hurlin (2012) panel causality test. The study consists of six parts in accordance with these targets. After the introduction part, in the second part literature studies, in the third part methodology, in the fourth part used data set and in the fifth part the findings obtained as a result of conducted analyses are presented. In the last part general evaluations about the interactions between oil prices and share market prices of countries were carried out according to the obtained findings.

2. Literature review

There are many studies analyzing the interaction between energy sources and share prices. The sampling used in current studies differs as periodically or methodically.

Henriques and Sadorsky (2008) analyzed the relationship between alternative energy share market prices, interest rates, oil prices and technology shares. Results indicate that technology share prices and oil prices influence alternative energy share prices separately. In addition, as a result of simulation it was determined that rather than oil shock prices technology share prices influence alternative share prices more.

Park and Ratti (2008) analyzed the effect of oil price shocks for 1986-2005 period on shock index earnings of the USA and 13 European countries. Results indicated that there was a positive relationship between share earnings and oil prices in Norway.

Miller and Ratti (2009) analyzed the long term relationship between world oil prices and international share prices among OECD countries for 1971-2008 period. As a result of the study it is seen that there is a long term relationship between oil and share prices of 6 OECD countries and share prices respond to the long term increase in oil prices in 1980-1988 periods negatively.

Mohantry, Nandha and Bota (2010) analyzed the relationship between share and oil prices of gas and oil companies in Middle and Eastern European countries and oil prices for 1998-2010 period. As a result of the study a significant relationship was found between the shares of gas and oil companies and oil prices.

İşcan (2010) analyzed the long term relationship between oil prices and share prices for 2001-2009 period by using daily İstanbul Stock Exchange IMKB-100 index and brent oil price data. According to the results obtained from cointegration tests conducted in this context, there is no long term relationship between these two variables.

Güler, Tunç and Orçun (2010) identified that oil prices were a significant indicator of share prices in their studies that they tested the effect of the change in oil prices for 2000-2009 period on share prices of energy sector trading in İstanbul Stock Exchange.

Arouri, Lahiani and Nguyen (2011) analyzed the fluctuation between share market and oil and earnings connections in Gulf Cooperation Council countries for 2005-2010 period. As a result of the study it was identified that political changes and shocks (crises) influence oil

supply and demand which directly increases the fluctuations in Gulf Cooperation Council markets and this leads to fluctuations in oil prices.

Arouri (2011) analyzed the response of European share market to the changes in oil prices for 1998-2010 period. According to the conducted analysis result, it is stated that the increase in oil prices influences the share prices of automobile and finance sectors negatively, but it influences the share prices of oil and gas sectors positively.

Anoruo (2011) analyzed the relationship between US share earnings and brent oil price changes through linear and non-linear models for 1974-2009 period. According to the analysis results, there is a two-way causality relationship between crude oil price changes abd share earnings.

Nguyena and Bhattib (2012) analyzed the relationship between share prices and oil price of China and Vietnam for 2000-2009 period. While the dependence between oil prices and Chinese market was opposite, a left-tail dependence was identified between Vietnam market and oil prices.

Sadorsky (2012) tried to analyze the fluctuation transitivity of technology companies and clean energy companies between oil prices and share market for 2001-2009 period. As a result of the study, a very high correlation was found between share markets of energy companies and technology companies.

Naifar and Dohaiman (2013) analyzed the effect of oil price shocks on share earning markets under regime shift and the relationship between oil prices and inflation and interest rates in pre-crises and post-crises period for 20014-2011 period for Gulf Cooperation Countries. As a result of the study, it was found that whether oil prices in oil producing countries increase or not, they have positive effects on shares of these countries. However, oil price changes do not influence the sectors for oil consuming countries.

Fattoum and Guesmi (2014) analyzed the relationship between share markets of 10 OECD countries and Brent oil prices for 1990-2012 period. According to the analysis results, it was identified that the events such as chaos, political changes, crises, etc. in the world had significant effects on shares and oil price shocks.

Reboredo and Rivera-Castro (2014) analyzed the relationship between sectoral share prices and oil prices of Europe and the USA for 2000-2011 period. According to the conducted analyses results the companies out of oil and gas companies are not influenced from the changes in oil prices in pre-crisis periods.

Reboredo, Rivera-Castro and Zebende (2014) analyzed the relationship between sectoral and overall share and oil prices of Europe and the USA for 2000-2011 period. When we look at the results, the changes in oil prices at sectoral level do not influence other sectors apart from oil and gas companies in pre-crisis period. However, positive dependence and contagion relationship between oil prices and share earnings since the beginning of crisis is perceived in the USA and Europe apparently.

Abdioğlu and Değirmenci (2014) analyzed the relationship between oil prices and share prices for 2005-2013 period on sectoral basis. As a result of the study, it was identified that there was a long term relationship between share prices and oil prices for industry, chemistry, textile and communication sectors.

Kaya and Binici (2014) analyzed the relationship between share prices and oil prices of the companies in İstanbul Stock Exchange (BIST) Chemistry, Oil, Plastic indices activating in Turkey with main production factor of oil for 2002-2013 period. As a result of the study, variables move together in long term. However, according to the test results carried out in order to determine the direction of causality between variables, it was identified that there was a one-way causality relationship from Brent oil prices and BIST-100 Chemistry, Oil and Plastic index variable.

Özdemirvanlı (2014) identified a long term relationship between oil prices and BIST-100 index as a result of his study that he analyzed the relationship between oil prices and BIST-100 index for 2003-2014 period. In addition, there is a one-way causality relationship from BIST-100 index closing prices to oil prices with Granger causality test.

Gönüllü, Otluoğlu and Şengöz (2015) concluded that oil prices had an effect on index in their studies that they analyzed the relationship between the fluctuations in crude oil prices and BIST-Oil, Chemistry and Plastic index for 2003-2012 period.

Çelik, Özdemir and Gülcan (2015) analyzed the effect of the changes in oil prices for 2000-2014 period on share earnings trading in İstanbul Stock Exchange. According to the study result, the changes in oil prices have no effect on share earnings.

Avcı (2015) analyzed the effects of oil prices on share markets for 2003-2013. As a result of the analyses, a long term relationship was found between variables. As a result of the conducted causality test, a causality was identified from oil prices to stock exchange earnings.

Özdemir and Akgül (2015) analyzed the effect of sudden changes in crude oil prices and gasoline prices in Turkey on industrial production for 2005-2014 period. It was observed that compared to industrial production the volatility of oil and gasoline prices in crisis period was more, but the volatility of industrial production in growth regime was more.

Phan, Sharma and Narayan (2015) analyzed how the changes in oil prices influenced share prices of oil producing and oil consuming countries for 1986-2010 period. According to the study results, all kinds of changes in oil prices in oil producing countries influence share prices of these countries positively. However, it is stated that the changes in oil prices do not influence sectors for oil consuming countries.

Eyüboğlu and Eyüboğlu (2016) indicate in their analysis that there is a long term relationship between natural gas and oil prices for 2005-2015 period. Accordingly, it is stated that index prices for the related sectors could have the same trend with natural gas and oil prices in long term.

Kendirli and Çankaya (2016) analyzed the causality relationship between the changes in crude oil barrel prices and İstanbul Stock Exchange 100 index (BIST-100) and İstanbul Stock Exchange Transportation (XULAS) Index for 2000-2015 period. According to the analysis result, it was identified that BIST-100 was the reason of crude oil prices and İstanbul Stock Exchange Transportation index. Also it was identified that İstanbul Stock Exchange Transportation index was the reason of crude oil prices.

3. Methodology

The long term relationship between stock exchange index for forty different economies which are grouped as developed and developing according to MSCI and Brent oil prices is analyzed in this study. 23 of the countries included in the study was grouped as developed economies, 17 of them was grouped as developing economies. First data group established with the stock exchange index of developed 23 economies was called as Panel A, but second data group established with the stock exchange index of developing 17 economies was called as Panel B. Existence of long term relationship between oil prices and Panel A and Panel B was analyzed with Pedroni Panel Cointegration analysis. Before this analysis is performed, unit root analysis should be performed for the data groups included in the study. For that purpose unit root analysis for Brent oil prices and Panel A, Panel B established from stock exchange indices included in the study was conducted through Im, Pesaran and Shin (2003) Panel Unit Root Test. However, the causality relationship between Brent oil prices and stock exchange indices with long term relationship was analyzed through Dumitrescu-Hurlin (2012) test. Therefore, direction of the relationship between stock exchange price indices and Brent oil prices of the developed and developing countries tried to be identified.

After analyzing the unit roots, whether there was a long term relationship between the series through Pedroni Panel Cointegration analysis. The following hypotheses are tested through Pedroni Panel Cointegration test (Pedroni, 2004).

H_o: There is no cointegration relationship for all cross-sections.

H_1: There is a cointegration relationship for all cross-sections.

In Pedroni Cointegration analysis seven different cointegration tests are presented in order to cover the effects within the sections and between the sections in the panel. These tests consist of 4 pooled tests in "within" dimensions and other 3 tests in "between" dimension (Asteriou and Hall, 2007).

$$\text{Panel v} - \text{Statistic} \quad Z_v = T^2 N^{3/2} \left(\sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{i,t-1}^2 \right)^{-1}$$

$$\text{Panel } \rho - \text{Statistic} \quad Z_\rho = T\sqrt{N} \left(\sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{i,t-1}^2 \right)^{-1} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \left(\hat{e}_{i,t-1} \Delta \hat{e}_{i,t-1} - \hat{\lambda}_i \right)$$

$$\text{Panel } t - \text{Statistic (Non} - \text{Parametric)} \quad Z_t = \left(\hat{\sigma}_{N,T}^2 \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{i,t-1}^2 \right)^{-1/2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \left(\hat{e}_{i,t-1} \Delta \hat{e}_{i,t-1} - \hat{\lambda}_i \right)$$

$$Panel\ t - \text{Statistic}$$

$$(Parametric) \qquad Z_t^* = \left(\tilde{S}_{N,T}^{*2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{i,t-1}^{*2} \right)^{-1/2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{L}_{11i}^{-2} \hat{e}_{i,t-1}^{*} \Delta \hat{e}_{i,t}^{*}$$

$$Grup\ p - \text{Statistic} \qquad \tilde{Z}_\rho = TN^{-1/2} \sum_{i=1}^{N} (\sum_{t=1}^{T} \hat{e}_{i,t-1}^2)^{-1} \sum_{t=1}^{T} \hat{e}_{i,t-1}\, \Delta\hat{e}_{i,t} - \hat{\lambda}_i)$$

$$Grup\ t - \text{Statistic}$$

$$(Non - Parametric) \quad \tilde{Z}_t = N^{-1/2} \sum_{i=1}^{N} (\hat{\sigma}_i^2 \sum_{t=1}^{T} \hat{e}_{i,t-1}^2)^{-1/2} \sum_{t=1}^{T} \hat{e}_{i,t-1}\, \Delta\hat{e}_{i,t} - \hat{\lambda}_i)$$

$$Grup\ t - \text{Statistic}$$

$$(Parametric\ ) \qquad \tilde{Z}_t^* = N^{-1/2} \sum_{i=1}^{N} \sum_{t=1}^{T} \hat{S}_i^{*2}\, \hat{e}_{i,t-1}^{*2})^{-1/2} \sum_{t=1}^{T} \hat{e}_{i,t-1}^{*}\, \Delta\hat{e}_{i,t}^{*}$$

If the calculated statistics are higher than the critical values, the null hypothesis is rejected. We decide that there is a long term cointegration relationship between the variables included in the analysis.

The causality relationship between Y and X in the analyses in Dumitrescu-Hurlin (2012) panel causality test was performed by using a linear model as the following.

$$y_{i,t} = \alpha_i + \sum_{k-1}^{K} \gamma_i^{(k)} y_{i,t-k} + \sum_{k-1}^{K} \beta_i^{(k)} x_{i,t-k} + \varepsilon_{i,t}$$

Basic and alternative hypotheses tested by utilizing this model are as the following:

$H_0 = \beta_i = 0 \quad \forall i = 1, \dots, N$

$H_1 = \beta_i = 0 \quad \forall i = 1, \dots, N_1$

$\beta_i = 0 \quad \forall i = N_1, \dots, N$

Basic hypothesis here is the absence of Granger causality relationship between the analyzed variables of all units. However, alternative hypothesis is the relationship between these two variables in at least one unit.

4. Data

All analyses in this study were performed by Brent oil prices and closing prices of stock exchange indices of forty different countries belonging to 23 developed and 17 developing economies according to MSCI. However, the data set used for the analyzed stock exchange indices and oil prices contains 282 monthly periods from 12:1992 to 04:2016. Before the analyses began, natural logarithms of Brent oil prices and closing prices of stock exchange indices for forty different economies used in the study were taken. Therefore, the data set used in the study were prepared to be ready for the analyses. Accordingly, stock exchanges of the developed and developing economies included in the study are as in Table 1.

Table 1. *Developed and developing economies for stock exchange included in the research*

PANEL A			**PANEL B**	
Developed Stock Market			**Developing Stock Market**	
Australıa	Ireland	Spaın	Chına	Chıle
Austrıa	Israel	Sweden	Indıa	Colombıa
Belgıum	Italy	Swıtzerland	Indonesıa	Mexıco
Canada	Japan	Unıted Kıngdom	Korea	Peru
Denmark	Netherlands	USA	Malaysıa	Greece
Fınland	New Zealand		Phılıppınes	Poland
France	Norway		Taıwan	Turkey
Germany	Portugal		Thaıland	South Afrıca
Hong Kong	Sıngapore		Brazıl	

Stock exchange closing price data for the developed and developing countries used in the study were obtained from www.msci.com. However, the data for Brent oil prices were obtained from www.eia.doe.gov. In further parts of the study the expression of Developed Stock Market is used for the first group data set established from stock exchange price indices for the developed countries and the expression of Developing Stock Market is used for the second group data set established from stock exchange price indices for the developing countries. However, the expression of OIL is used for Brent oil prices.

5. Empirical results

Im, Pesaran and Shin (2003) unit root analysis results of stock exchange price indices for the developed and developing countries used in the study are as in Table 2.

Table 2. *Results for Im, Pesaran ve Shin (IPS) Unit Root Test*

Variables	**I(0)**	**I(1)**		
	Istatıstics	Prob.	Istatıstics	Prob.
PANEL A				
Developed stock market	- 0.73555	0.2310	-81.3036	0.0000*
oil	1.98754	0.9766	-69.9213	0.0000*
PANEL B				
Developing stock market	0.62875	0.7352	-66.6381	0.0000*
oil	1.71409	0.9567	-60.1096	0.0000*

*, **, *** indicate the significance at 1, 5, 10 levels, respectively. The relevant lag length was determined according to Schwarz information criterion. Barlett Kernel method was used in LLC test and Band with width was determined by Newey-West method.

According to Im, Pesaran and Shin (2003) panel unit root test results, panel is unit rooted and H_o hypothesis is accepted for level values. Accordingly, all panel data are not stable at I(0) and include unit root. However, when the first difference of the data is taken, H_o hypothesis is rejected. Thus, when all panel data is I(1), it is stable. In other words, at least one cross section is stable and it does not include a unit root.

After the stability of the data was analyzed by Im, Pesaran and Shin (2003) panel unit root test, the existence of a long term relationship between the developed and developing stock exchange price indices and Brent oil prices was analyzed by Pedroni Panel Cointegration Analysis. General equation established for Pedroni Panel Cointegration Analysis applied to analyze the long term relationship between stock exchange price indices and oil prices was prepared as the following:

$$\text{Stock Market}_{it} = \alpha_{it} + \beta_1 \text{OIL}_{it} + u_{it} \quad (1)$$

This equation was prepared as the following for oil prices and Panel a data group with stock exchange price indices for the developed economies used in the study.

$$\text{Developed Stock Market}_{it} = \alpha_{it}+\beta_1 OIL_{it}+u_{it} \quad (2)$$

However, this equation was revised as the following for oil prices and Panel B data group with stock exchange price indices for the developing economies. Therefore, it was aimed to increase the generalization and reliability of the findings obtained as a result of the study.

$$\text{Developing Stock Market}_{it} = \alpha_{it}+\beta_1 OIL_{it}+u_{it} \quad (3)$$

Result of Pedroni Panel Cointegration analysis applied for equation 2 and equation 3 are as in Table 3.

Table 3. *Results of Pedroni panel cointegration test for stock markets*

$STOCK\ MARKET_{it}=\alpha_{it}+\beta_1 OIL_{it}+u_{it}$									
Developed Stock Markets					**Developing Stock Markets**				
Pedroni Panel Cointegration Test					Pedroni Panel Cointegration Test				
Within-Dimension					Within-Dimension				
	Statistic	Prob.	Weighted Statistic	Prob.		Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-2.616533	0.9956	-2.738568	0.9969	Panel v-Statistic	-0.077615	0.5309	-0.463144	0.6784
Panel rho-Statistic	-0.834223	0.2021	-0.847515	0.1984	Panel rho-Statistic	-1.637842	0.0507***	-1.774489	0.0380**
Panel PP-Statistic	-1.470640	0.0707***	-1.478082	0.0697***	Panel PP-Statistic	-1.879603	0.0301**	-1.990923	0.0232**
Panel ADF-Statistic SS	-1.345049	0.0893***	-1.391446	0.0820***	Panel ADF-Statistic	-1.809542	0.0352**	-1.892054	0.0292**
Between-Dimension					Between-Dimension				
	Statistic		Prob.			Statistic		Prob.	
Group rho-Statistic	2.7570		0.99708		Group rho-Statistic	0.369244		0.6440	
Group PP-Statistic	-0.1242		0.4506		Group PP-Statistic	-1.721803		0.0426**	
Group ADF-Statistic	0.0801		0.5319		Group ADF-Statistic	-1.543104		0.0614***	

*, **, *** indicate the significance at 1, 5, 10 levels, respectively. The relevant lag length was determined according to Schwarz information criterion.

According to two criteria of seven different criteria from the results obtained by Pedroni Panel Cointegration test applied for equation 2, there is a long term relationship between stock exchange price indices and oil prices for the developed economies Similarly, according to five criteria of seven different criteria obtained by Pedroni Panel Cointegration test applied for Equation 3, there is a long term relationship between stock exchange price indices and oil prices for the developing economies. This situation also supports that there is an interaction between stock exchange price indices and oil prices of both developed and developing economies. However, direction of this interaction should be identified. For this purpose, however, Dumitrescu-Hurlin (2012) panel causality test was applied in order to identify the direction of the interaction between oil prices and stock exchange price indices with the long term relationship. Results of Dumitrescu-Hurlin (2012) panel causality analysis applied for different lag lengths are as in Table 4.

Table 4. *Results for Dumitrescu Hurlin (2012) Panel Causality Test*

	K=1		**K=2**		**K=3**	.
	W-Stat.	**Zbar-Stat**	**W-Stat.**	**Zbar-Stat**	**W-Stat**	**Zbar-Stat**
OIL ≠> DEVELOPED STOCK MARKET	1.1566	0.5001	2.1380	0.2914	3.2215	0.3835
DEVELOPED STOCK MARKET ≠> OIL	3.2250*	7.4258*	11.8128*	23.1527*	13.2191*	19.6338*
OIL ≠> DEVELOPING STOCK MARKET	2.3171*	3.7708*	3.1730**	2.3532**	3.7011	1.1237
DEVELOPING STOCK MARKET ≠> OIL	3.0115	5.7696	9.8095*	15.8353*	10.9216*	13.0765*

*, **, *** indicate the significance at 1, 5, 10 levels, respectively.

According to Dumitrescu-Hurlin (2012) test results applied for stock exchange indices and oil prices of developed economies in Table 4, there is a one-way causality. Direction of the causality is from the stock exchange price index of the developed economies to the oil prices. According to these obtained results, stock exchange index of developed countries is a factor to be used for explaining the changes in oil prices. However, the changes in oil prices are not factors to be used for explaining the changes in stock exchange indices of developed economies. In other words, price changes in stock exchanges of developed economies provide useful information to explain the changes in oil prices.

However, according to the results obtained for stock exchange price indices and oil prices of developing economies in Table 4, causality relationship is two-way with two lag lengths. Thus, stock exchange price changes of developing economies are factors to be used for explaining the changes of oil prices. This is also valid for both stock exchange price changes of developing countries and the changes in oil prices. Thus, both stock exchange price indices of developing economies and oil prices provide useful information for explaining price changes.

6. Conclusions

There are a lot of studies in literature analyzing the long term relationship between oil prices and share price level changes. However, no comparative study analyzing the cointegration and causality relationship between share prices and oil prices in two groups as developed and developing economies in the world was found. At that point, with this study it is aimed to fill this gap in literature by the analyses conducted for 282 monthly period from 12:1992 to 04:2016. Brent oil prices and stock exchange index of forty different economies, 23 developed, 17 developing ones, were used in the study. The long term relationship between stock exchange indices and oil prices was analyzed through Pedroni Panel Cointegration test. However, direction of causality between stock exchanges having a long term relationship with oil prices was analyzed through Dumitrescu- Hurlin (2012) test.

Main results that we obtained from this study can be grouped as the following. Firstly, there is a long term relationship between stock exchange indices and oil prices of developed countries. This is also valid for developing countries and oil prices. However, according to the obtained results, the relationship between oil prices and stock exchange price indices in developing economies is stronger according to the cointegration analysis results applied for different economies. According to this result, oil prices and share prices move together. This indicates that price changes in one of them is effective in price changes in the other.

Secondly, there is a one-way causality relationship between Brent oil prices and stock exchange price indices of developed countries. Direction of this relationship is from the stock exchange price index to the oil prices. Thus, general level of share prices of developed countries influences the oil prices. However, oil prices do not influence the general level of share prices. This is against the common view that oil prices influence share prices negatively. Because oil prices do not influence share prices in developed countries. However, share prices influence oil prices.

In developing economies causality relationship is two-way. Thus, share prices provide useful information to explain the changes in oil prices. Also oil prices provide useful information to explain share prices. Accordingly, changes in oil prices in developing economies can be used as a parameter to determine the strategies of share market investors. Share investors in developing markets may develop investment strategies and make decisions by following oil prices.

Also oil in developing economies are intensely used in industry as an important raw material and energy source. No replacement or limited replacement of oil, an important input in developing economies, causes a more sensitive structure of these economies against oil prices. This causes to be influenced from the changes in prices and to influence oil prices. The interaction in these economies with intensive demand for oil is therefore high. Studies to be obtained more specific information may be carried out by grouping the economies in the world according to different economic criteria such as economic cooperation, trade volumes as well as development level in future studies. In addition, models in which the methods that structural breaks are considered are used may be utilized in future studies.

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