DETERMINATION AND EVALUATION OF RELATIONSHIP BETWEEN THE PRICES OF CRUDE OIL SALES PRICE OF FIVE PETROLEUM PRODUCTS AND CREATING A MODEL FOR THE PRICING OF PETROLEUM PRODUCTS

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Abstract
Crude oil is refineries main input at production of petroleum products and changes of it, s price impact on the price of products very much. Therefor there is close relationship between crude oil and oil products market and price information is pasted between the market price information. Current study set to investigate the long-term and short-term relationship between refinery crude oil price and price of refined petroleum with using of autoregressive methods with lagged explanatory and error correction model during monthly period since 2002 to 2013.Results of estimated model with the auto regressive lagged explanatory model show that this dynamic model move towards long-term equilibrium . Results of long-term estimation show that two variables - price of gas oil and gasoline prices – do not impact on crude oil price significantly. Variables such as fuel oil, kerosene and liquid gas have significant positive impact on crude oil price. In the long run through these three variables, kerosene price variable has the greatest impact on crude oil price that can be considered for long-term crude oil price policies based on the prices of petroleum products . After the price of kerosene, fuel oil price has the greatest impact on crude oil prices in the long term.
Keywords: crude oil, fuel oil, kerosene, gasoline, liquid gas, gas oil, ARDL ،VAR

1- Introduction

Energy play an important and infrastructure role in the economic industrial life of communities and also caused huge changes in the industry in recent centuries and in this respect considered one of the main pillars of economic development . Among various energies which human use, oil have special place and consider as main source of energy in world now .therefor. At every country governments , decision-makers and economic actors to make any type of decision and policy making need to know about developments in the energy market and specially developments in the oil market . Crude oil prices have been a key factor among the variables affecting the energy market which have decisive role in the recession and economic recovery of communities due to its importance in the international markets. It is worth mentioning, fluctuations in the crude oil market lead to huge economic influence which is considered not only as economic good but also as political element . Study about relationship between the crude oil and price of petroleum products in the market analysis in terms of signal and prices reaction is important and in economic literature, many studies is done to evaluate interaction between crude oil prices changes and changes in the price of petroleum products . A

number of studies use vector autoregressive models and error correction model to evaluate the data transfer between the markets and the test for causation between prices. Unfortunately, studies are mainly done about gasoline price manner and crude oil price transfer to gasoline prices in retail markets and few studies have investigated the mutual Relationship between crude oil price and products price . We decided in this study to predict the price of crude oil with using a new methodology according to especial importance of oil as one of the main sources of energy supply in the world and its price in the international markets. The present study was carried out in Isfahan oil refinery and thematic scope of this study was to determine the relationship between two variables, prices of crude oil and petroleum products according to Esfahan oil refining co. Petroleum products pricing model based on oil prices (based on fob Persian gulf). In the following, we pay attention to theoretical framework , literature review, methodology , presentation , models and their analysis and at the end of this study we provide summary and conclusions .

2- Theoretical foundations

Study about relationship between the price of crude oil and petroleum products prices is done to evaluate the reaction of price in following of the Persian Gulf crisis (1990-1991) and fluctuations in crude oil prices and the prices of products. The results of these studies emphasized on the common perception based on gasoline prices asymmetric response to fluctuations in the market price of crude oil in America and Europe . But in the next study were obtained different results for other markets.

Crude oil price as other products affected from the supply and demand relationship and sometimes external events. Demand for crude oil is increased with the emergence of new economic centers such as china and India rapidly which their country development rapid engines take a lot of energy. China is now the world is looking for oil in worldwide and is going to insure its future with buying the shares of oil prices even higher than the actual price plans. China's oil demand growth in 2005 compared to 2003 is 23%., changes in the price of crude oil through two channels of supply and demand affect the economy according to economic theory. Supply side effects can be demonstrated that this oil is the raw material for many products. Therefore, increasing oil prices will reduce demand for oil. The demand side also affect on economy through consumption and investment. Consumption indirectly affected by changes in oil prices due to their positive correlation with disposable income. With increasing oil prices, we can see a transfer of income from oil importing countries to exporting countries .therefor, oil consumption reduced in importing countries. The rise in oil prices through increasing of companies cost effect on the investment adversely. Exchange rate and inflation also effects on economy, in addition to the effects that change crude oil prices through supply and demand . Many methods exist to assess and predict global oil prices which given that assumption , accuracy , efficiency as well as the researchers experiences present each different and distinctive prediction accurately .for example , at arch , most estimated models is used for the measurement of uncertainties in oil prices . In this case, it can be cited to d and Lewis models (1996) zoe and taylor , gary and duffy and nelson(1996) . Vector auto regression model was performed by cordon & neary (1982) , van wijnbergen (1986) fardmanesh "(1991) al-mutawa (1992). In these models, the results are more or less similar to other studies . The difference is that we study the effects of bilateral opec oil production quotas , oil income gap and the important role of government spending in the industrialized countries on oil prices in some of these models .

3- History of Research

The first study was done by bacon (1991) to assess different response gasoline prices , to rise and fall of crude oil prices . The study is done for the UK gas market and the period of 1989-1982. The result of this study showed that full transfer of crude oil price to gasoline is faster than the price reduction. Kilian&park(2008) in their article titled "the impact of oil shocks on stock market America showed

that America stock turnover reaction to change in crude oil price depend on price change from crude oil supply shock or from demand shock . O'neill and colleagues (2008) , park , and ratty (2008)with using a sample of 13 pieces from developed markets showed oil price shocks have a significant negative impact on stock prices . Cong &wei & jiao &fan (2008) , study relationship between oil price shocks and stock returns to china , using a model VAR for the period2007:12 1996:1. The results showed that oil price shocks have a significant effect on stock returns in china. The results showed that oil price shocks don not have a significant effect on china stock returns. Sadursky (1999) , study relationship between oil prices , interest rates , industrial productions , consumer price index and stock market review with using monthly data from 1996 to 1947 under a vector autoregressive model (var) . He showed that both oil prices and oil price fluctuations play a significant role on the stock market. He also concluded that oil negative shocks impact on the stock market period more than positive oil shocks.

Jalali naini and colleagues (2010)in an article study relationship of causality between crude oil prices and oil productions price in america and europe markets. In this article we have investigated causality relationship between price of crude oil and petroleum products prices in america and europe markets, based on vector error correction model and toda - yamamoto causality . The results of the price conforms that the results of previous studies based on there is a long-term causality existance of crude oil prices to the price of products for long-term period 2008- 1987 .

Keshavarz and maanavi (2008)in their article studied stock and currency market interaction in iran with emphasis on the impact of oil momentums with using of VAR and granger causality method approach and data of period 1999-2006 and concluded that the stock market will react further in the event of oil price enhancement and in the face of oil prices declining influence on the price of oil on the stock price less evenly .

Samadi and colleagues(2007) studied the effect of stock prices of oil and gold prices with using data of period 1999-2006 and garch method and concluded that impact of the gold global price on stock price index of tehran stock exchange is more than impact of global oil price index .

4. Methodology and model specification

Considering that the aim of this study was to determine the relationship between the prices of crude oil with selling price of five of petroleum products which include:

PCO: crude oil prices : crude oil is a thick black or dark brown liquid that much of it consists of various hydrocarbons . Crude oil is always to be found in sedimentary layers and always there is a large amount of organic material in these layers. Remnants of this material, plants or animals contain large amounts of carbon and hydrogen that crude oil is the major manufacturer. Crude oil primarily consists of hydrocarbons, paraffin oil, and aromatic. In addition, there is small amounts of sulfur compounds, nitrogen, and oxygen and a minor amount of metals in crude oil. Refining industry allow to acquire a wide range of crude oil, oil products business with using the separation methods of and hydrocarbon conversion. (abusadra , 2006: 125)

Gasoline prices : gasoline derived from crude oil , which is very important in used pg vehicles . This combustion material called gasoline in the united states and in England petrol . These words should not be confused with the term petroleum means crude oil. Gasoline is a kind of fuel to combustion of ignition internal engines

which is formed basically flammable liquid and volatile hydrocarbons and derived of crude oil by processes such as distillation , polymerization , catalytic cracking and alkylation . Gasoline for automobiles is a a mixture of various hydrocarbons which are combined in different proportions . In addition, the material is also mixed with gas oil neuntilrise its slow –burning degree or octane number. Present hydrocarbons in gasoline begins from 4 carbons and end to 12 carbons . The boiling point of between 30 and 210 ° c. Various types of fuel can be produced and presented in refineries

which the major difference is in the slow–burning degree. If all piston engines work with fuel improperly, producing a sound that is called stroke . (bachmyr , 2003: 722)
Pk : kerosene price : kerosene is used to create light or heat in a variety of lights . This section contains hydrocarbons whose its boiling point range has been lied immediately after the gasoline . Kerosene contains the final hydrocarbons 10 c to 12 c . Nowadays the use of these products is dissipating for the lighting. Its application is also limited in thermal equipment. Kerosene is also used as a pesticide solvent after it purified and deodorized.
Pd: diesel price: in fact gas oil and heating oil and diesel are a matter . But there are differences in their technical specifications used in terms of diesel and industrial and heating engines . Even one can be defined ship or oil or (mgo) in the same direction. The diesel fuel was introduced for the first time by German inventor named diesel which called simply the same name in some sources.
pff : furnace fuel price: fuel oil or waste oil composed of elements that have not evaporated during the distillation of crude oil in refinery . Therefore molecules are larger and heavier . These products also known " black oil " due to its black color . Fuel oil is used primarily as the main fuel for electricity power plants and ship fuel . Because when ships worked with the coal , coal storage is called tank banker . (davis and colleagues, 2004: 17)
Pgl : liquid gas price : we can analysis calculated coefficients from various estimates
as the drag coefficient and have better results in terms of stability . We use
Variables as log in the model. Therefore the final model will be as follows:

Lpco=f(lpg, lpk, lpd, lpff, lpgl)

4 .1 Data processing method, VAR

Vector auto regression(var) is model which each variable be fitted on its lagged values with its interruption and the lagged values by interrupting all other variables in model . Because of the advent of the dependent variable was the time interval regressive model and because of the multiple variables of vector talk comes as a result of the operation is known to vector auto regression model.

4.2 Error correction model ecm

Despite the accumulation of a set of economic variables in the statistical basis support using of error correction model. These patterns have become increasingly known growing celebrity in experimental work. The main reason for the reputation of ecm error correction models is variables short-term fluctuations are linked to long-term equilibrium values. It is clear from what has been said that when the two variables xt and yt are converging, there is a long run relationship between them. However, in the short term there may be a lack of equilibrium. In this case, the error equation can be considered as a balance error.

$$Y_T = \beta X_T + \mu_T \qquad U_T = Y_T - \beta X_T$$

Now, it could be used an error to link the short-term behavior Y_T with its long-run equilibrium. For this purpose, we can set an example as follows.

$$\Delta Y_T = \alpha_\circ + \alpha_1 \Delta X_T + \alpha_2 U_{T-1} + \varepsilon_T \qquad \varepsilon_T \, IID(\circ, \alpha^2)$$

Where ut-1 , is regression estimation error with time delay. Such a pattern of error correction model (ecm) is known that changes in have been linked to prior period balances error.

3-4. Vector error correction model vecm

As previously mentioned, a vector autoregressive model which is k endogenous variable and p time delay for each variable that display in matrix as follow:

$$Y_T = A_1 Y_{T-1} + A_2 Y_{T-2} + ... + A_p Y_{T-P} + U_T \qquad U_T \; 1N\ (\circ, 4)$$

In this context, yt relation and its interrupt of 1 × k vectors is related to template variables . Ai to i=1,……..,p are model coefficients and ut is k×1 vectors to template variables .And the vector is related to residuals pattern . Now, we can create following relationship in vector error correction model vecm to link short-term behavior yt to long-term equilibrium values:

$$\Delta Y_T = \beta_1 \Delta Y_{T-1} + \beta_2 \Delta Y_{T-2} + ... + \beta_{P-1} \Delta Y_{T-P-1} + \pi Y_{T-P} + U_T$$

Where in

$$\beta_1 = -(I - A_1 - A_2 - ..... - A_i) \qquad , \qquad i = 1,2,....., p-1$$

$$\pi = -(I - A_1 - A_2 - ..... - A_P)$$

Matrix π contain information on long-term equilibrium relations .in fact $\pi = \alpha\beta'$

Is a case which α are adjustment imbalance coefficients and represents the adjustment speed to the long-term equilibrium and β is long term equilibrium relations coefficients matrix. Therefore, $\beta' Y_{T-P}$ is included at (29-3) relation is equal to error correction (ect)at $U_T = Y_T - \beta X_T$ single- equation model . However, the maximum of (k-1) is an independent vector.

In fact, $\beta' Y_{T-P}$ contain k vector column. But up only (k-1) of these vectors can be indicative of long-term equilibrium relations. Most of the long-term equilibrium relations are less than (k-1).

4-4. Impulse response

Impulse response defines the dynamics of prices (ldef) in response to a shock in the system, the size of a standard deviation of each variable. Momentums is elected usually as much as standard deviation. Therefore, it is called momentum by hitting unit. By using this way , dynamic response of the device impulses imposed specified from any of the variables .

5-4. Variance decomposition

In this way, imposed momentums share to pattern different variables is defined at forecast error variance of a variable in the short-term and long-term . For example, if the variable is predictable based on amounts with its delays optimally, then forecast error variance explained based on the imposed momentums at that variable . When forecast error variance decomposed, fluctuations share of each variable is divided into model variable sin response to imposed momentums. Therefor we be able to measured contribution of each variable on changes in other variables over time.

6-4. Auto regression approach with wide delays

In this study, we profited of auto regressive approach with distributed delays (ardl) boys and colleague to evaluate long-term relationship between the variables.

The offered approach ARDL by boys and colleague (2001) compared with other integration approaches such as engle -granger (1987), johansen and juselius (1990) have several benefits : 1) the long term and short term parameters are estimated simultaneously . 2) some integration techniques are sensitive to sample volume . But can be profited from ARDL approach for small samples. 3) the inability to test the hypothesis for the estimated coefficients solved in the long term at time of using of engle -granger method . 4) ardl approach can done estimation without consider whether the variables are i (0) or i (1) .

Accumulation existence of a set of economic variables provides statistical basis to using error correction models. The main reason for reputation of error correction model is that variables short-term fluctuations be linked to their long-term equilibrium values. In fact these models are a kind of partial adjustment models. They measured effective forces in the short term and speed of approaching to the long-term equilibrium value with the manna waste from a long-term relationship.

Statistics basis of auto regression models using with wide delay is co integration existence between economic variables. Auto regression models with wide delay provide the possibility of long-term relations between endogenous variables. In addition, link short term behavior of these models to their variables long-run equilibrium value and display how imbalances in the variables long-run equilibrium relationships between effect on their short term dynamic changes. The exclusive characteristics of auto regression models are with extensive delays which distinguish them from other structural and non-structural econometric models and caused that these models in the 1990s experience the its development growth very fast .

5. Model estimation

Model assessment with auto explained method with wide delays

Results from assessment of first pattern with wide delays are as eviews output software. As can be seen, the determination estimated coefficient is 0/99949which represents the model explanatory power is very high. Therefor, other variables at a high level are significant except gas oil (lpd) price variable and gasoline price (lpg) .

From these results should be carried out to test presence or absence long-term relationship, if the sum

Autoregressive Distributed Lag Estimates
ARDL(1,0,0,1,0,0) selected based on Schwarz Bayesian Criterion

Dependent variable is LPCO
130 observations used for estimation from 1381M3 to 1391M12

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
LPCO(-1)	.15459	.043886	3.5226[.001]
LPD	-.038389	.085930	-.44675[.656]
LPFF	.14701	.040939	3.5909[.000]
LPG	.023083	.043172	.53468[.594]
LPG(-1)	-.13065	.038782	-3.3690[.001]
LPGL	.089023	.019429	4.5820[.000]
LPK	.75273	.10148	7.4174[.000]
INPT	-.084067	.038434	-2.1873[.031]

R-Squared	.99944	R-Bar-Squared	.99941
S.E. of Regression	.023103	F-stat. F(7, 122)	31076.8[.000]
Mean of Dependent Variable	15.1772	S.D. of Dependent Variable	.94898
Residual Sum of Squares	.065116	Equation Log-likelihood	309.4811
Akaike Info. Criterion	301.4811	Schwarz Bayesian Criterion	290.0110
DW-statistic	1.8221	Durbin's h-statistic	1.1712[.242]

Diagnostic Tests

Test Statistics	LM Version	F Version
A:Serial Correlation	CHSQ(12)= 27.1376[.007]	F(12, 110)= 2.4184[.008]
B:Functional Form	CHSQ(1)= .83661[.360]	F(1, 121)= .78373[.378]
C:Normality	CHSQ(2)= 71.3588[.000]	Not applicable
D:Heteroscedasticity	CHSQ(1)= .81535[.367]	F(1, 128)= .80787[.370]

of the coefficients of the variables with related delay on the dependent variable interval is less than one, dynamic pattern will tend towards long-term equilibrium model. So we have:
Listed above null hypothesis and test against assumptions is as follows:
The numbers in parentheses at the top of algal estimation output table with ardl manner namely ardl(1,0,0,1,0,0) is indicant of the number of dependent variable optimal delays and the explanatory variables .
Dependent variable should have had at least one interruption to investigate the presence or absence of association between variables . This condition is provided in the above table. So we can test presence or absence long-term relationship that is as follows:
the result is a test of the t-statistic which can compare its parameters
Now , we are sure from a long-term relationship , the results of long-term relationships can be obtained as follows:
table 2 . Long-term pattern estimation with ardl manner
Mannermodel error correction with ardl

Proportionate to any long-term relationship is an ecm error correction model which

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            Estimated Long Run Coefficients using the ARDL Approach
          ARDL(1,0,0,1,0,0) selected based on Schwarz Bayesian Criterion
*******************************************************************************
 Dependent variable is LPCO
 130 observations used for estimation from 1381M3  to 1391M12
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 LPD                      -.045409             .10123           -.44858[.655]
 LPFF                      .17389             .048601            3.5779[.000]
 LPG                      -.12724             .049372           -2.5772[.011]
 LPGL                      .10530             .023329            4.5137[.000]
 LPK                       .89037              .10820            8.2288[.000]
 INPT                     -.099439             .044252           -2.2471[.026]
*******************************************************************************
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Linked variables short-term fluctuations to their long-term equilibrium values
Which can observe results in the following table.

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          Error Correction Representation for the Selected ARDL Model
        ARDL(1,0,0,1,0,0) selected based on Schwarz Bayesian Criterion
*******************************************************************************
 Dependent variable is dLPCO
 130 observations used for estimation from 1381M3  to 1391M12
*******************************************************************************
 Regressor              Coefficient       Standard Error         T-Ratio[Prob]
 dLPD                     -.038389             .085930           -.44675[.656]
 dLPFF                     .14701             .040939            3.5909[.000]
 dLPG                      .023083            .043172             .53468[.594]
 dLPGL                     .089023            .019429            4.5820[.000]
 dLPK                      .75273              .10148            7.4174[.000]
 dINPT                    -.084067             .038434           -2.1873[.031]
 ecm(-1)                   -.84541             .043886          -19.2638[.000]
*******************************************************************************
 List of additional temporary variables created:
 dLPCO = LPCO-LPCO(-1)
 dLPD = LPD-LPD(-1)
 dLPFF = LPFF-LPFF(-1)
 dLPG = LPG-LPG(-1)
 dLPGL = LPGL-LPGL(-1)
 dLPK = LPK-LPK(-1)
 dINPT = INPT-INPT(-1)
 ecm = LPCO +  .045409*LPD   -.17389*LPFF +   .12724*LPG   -.10530*LPGL   -.89
037*LPK +  .099439*INPT
*******************************************************************************
 R-Squared                        .95066   R-Bar-Squared                  .94783
 S.E. of Regression               .023103  F-stat.    F(  6, 123)  391.7755[.000]
 Mean of Dependent Variable       .025728  S.D. of Dependent Variable      .10115
 Residual Sum of Squares          .065116  Equation Log-likelihood       309.4811
 Akaike Info. Criterion         301.4811   Schwarz Bayesian Criterion    290.0110
 DW-statistic                     1.8221
*******************************************************************************
 R-Squared and R-Bar-Squared measures refer to the dependent variable
 dLPCO and in cases where the error correction model is highly
 restricted, these measures could become negative.
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it can be seen, error ecm (-1) correction coefficient is less than 1 and and statistically is significant. This coefficient is negative, indicating that long-term imbalances move in the balance. This coefficient shows that in every course about 84 % of crude oil price imbalances goes away and according to the monthly survey period, this result emphasizes on very high speed towards equilibrium.

The investigated results of the impulse response function or response to impulse (irf) at var model
In discuss of response to impulse for variable is assumed that system is in balance, and this balance is in origin. So that all variables in equilibrium are equal to zero. The momentum effect (impact) of a sudden to a variable called temporary. Which variable after several time period returns to previous equilibrium. If this variable not return to zero, and remain in different equilibrium amount called permanent impact. Here is noted that the hit rate is considered as one standard deviation. In other words, we analysis the effect of momentum criterion deviation on other variables in study triggered. Diagram 1 show lpco responses to one momentum criterion deviation at model explanatory variables over a period of 24 months or 2 years.

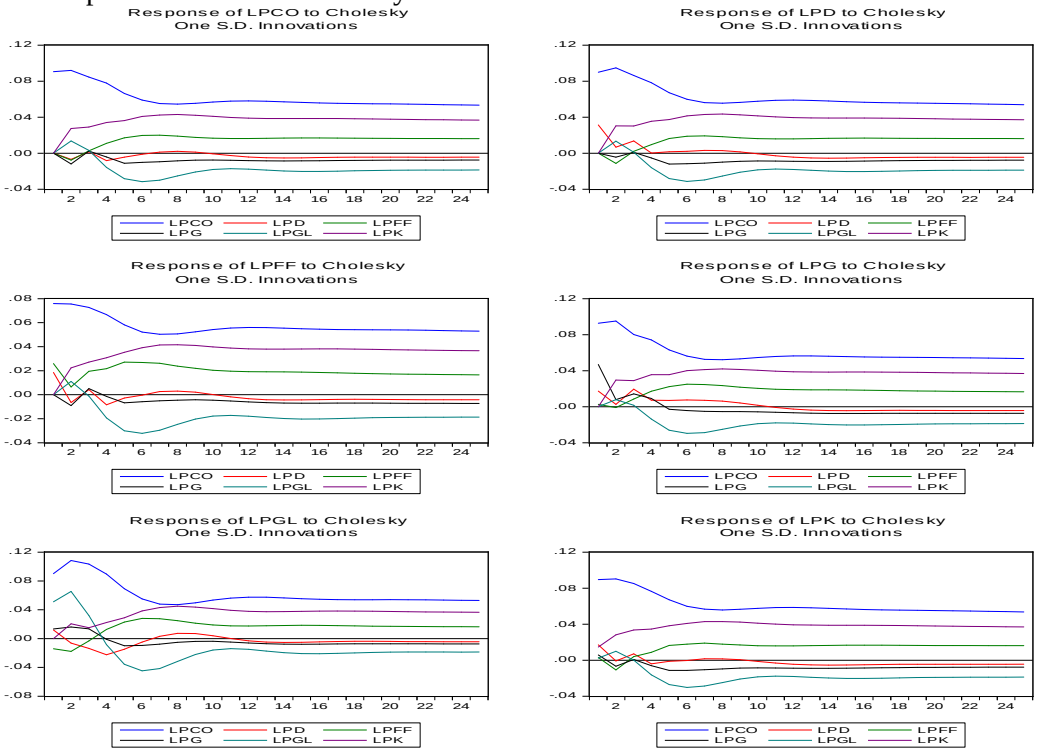


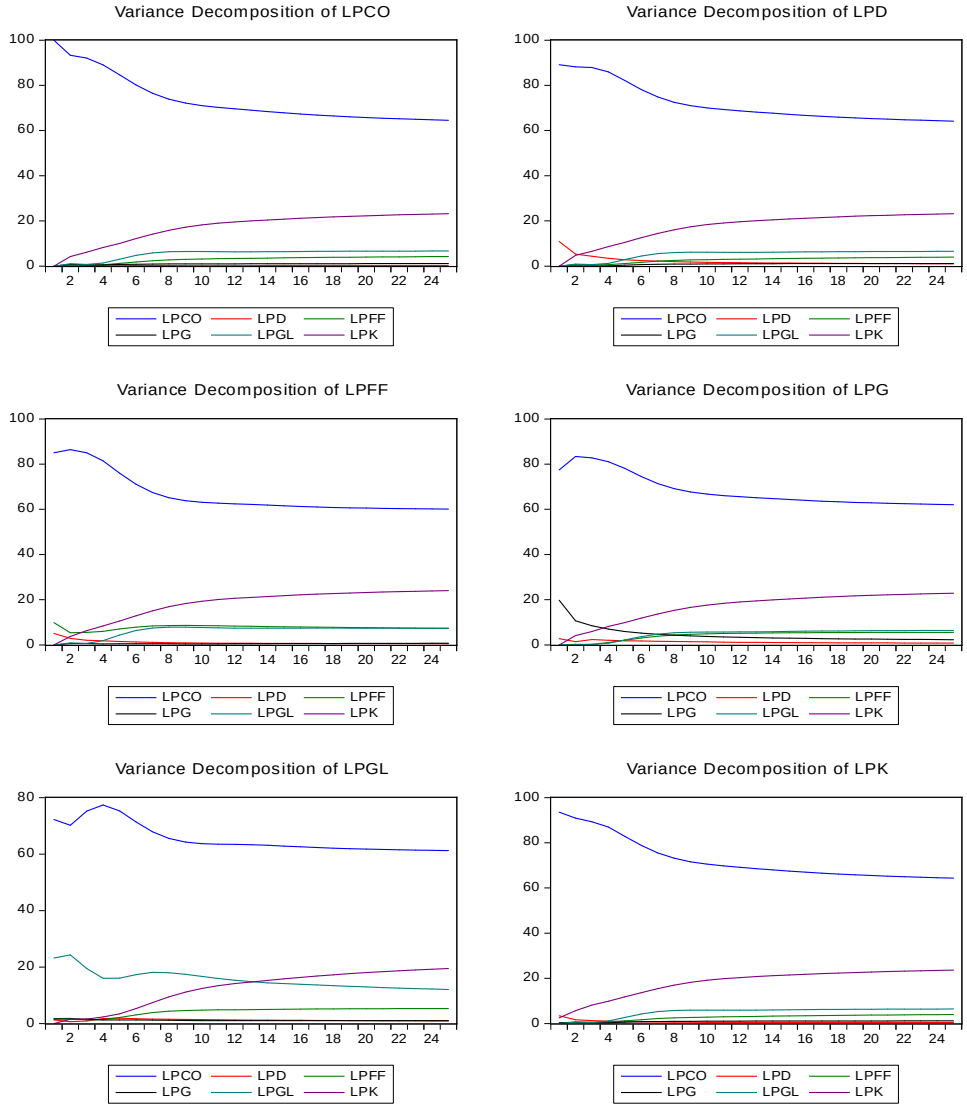
Diagram 1. Reaction to the impact of crude oil price in the period of 2 years(24 months)

5- Variance decomposition forecast error investigation at VAR model

at share variance decomposition criteria or resulting momentum partnership percent at mentioned variables is studied at variables forecast error variance. In other word, forecast error variance decomposition at vector auto regression models (Var)help us to study that changing of one variable (time series) to what extent is influenced by its disturbing elements is variable and to what extent , were influenced from other variables disturbing elements within the system . Analysis basis based on prediction error variance decomposition is firmed to dynamic vector regression model based on a share comparison of each variable in the course of the forecast error based on the same period. In other words, every variable that has a higher proportion of the se in every period, the share will have

greater volatility in the dependent variable. In other words, forecast period forecast error variance increases with increasing duration. In conclusion, with the decomposition of prediction error variance we can say that we can study that to what extent sequence changes were affected by disturbing components of self sequence and to what extent sequence changes is effected from disturbing elements within the system variables .

In this section, using the model estimates, decomposition of services office
variable variance was performed according to estimated model. Based on results of variance decomposition, hundred percent of their crude oil price changes is due to
Self-variable in the first period . Results show that in the long run about 60% of crude oil price changes by self-variable , 32 % of the kerosene price , 6% by the lpg price and others that are small (about 2%) caused by other variables which included in the model . The results of the study forecast error variance decomposition study is also well known in the following diagram.



6. Conclusions and Recommendations

The results of stability tests showed that all variables to measure the actual hypothesis is rejected , as a result , all the variables involved with integration times are zero (0) 1 . In general it can be said that both peers research variables and stacked are zero which are important to estimation with same degree vector auto regressive manner or degree of integration variables. Note that all research variables to Isfahan refinery and monthly is during the period from 2002 to 2013. We concluded to results of auto regression method model estimation with explanatory delays which these research dynamic models move towards long-term equilibrium. This study was conducted to estimate the research long-term relationship. Estimated pattern show that the explanatory power of the model is high because of the determination coefficient is very high. And also the f statistic of the regression equation was too high. The long-term pattern results showed that gas oil price and petrol prices variables have not a significant impact on oil prices in long-term. Fuel oil, kerosene and liquid gas price variables have a significant effect on crude oil prices. Kerosene price variable of these three variable have the greatest impact on crude oil price in long-term which for crude oil long-term price policy can be attractive based on petroleum products price .Heating oil price after the price of kerosene have maximum impact on crude oil price in long-term. Since research variables were used logarithmically. Therefore, estimated coefficients of this model is indicative of their long-term stretch .In other words, long-term price elasticity of crude oil prices relative to kerosene price in the long-term is very much , in a way that crude oil prices increased by more than 79 percent for every one percent increase in the price of kerosene . In the following, we studied error correction pattern and short-term dynamics.

The results showed that error correction coefficients is very high and show that

Adjustment speed from short term to long term research is very high at research model. Also results showed that fuel oil prices, gasoline prices with a time delay, liquid gas , kerosene and gasoline have significant impact on crude oil prices . Gas oil price is the only variable which has no significant effect on the price of crude oil in the short term. As well as gasoline prices with delay have a significant negative effect on crude oil prices in the short term. But other variables have positive impact on crude oil price in the same period and without interruption. Because the variables are logarithmic. Therefore, estimated coefficients for variables are indicative of short term stretch .we can say, kerosene prices in the short term have maximum impact on crude oil prices according to the results of this study in the fourth quarter of this research. Also this matter can be very useful in crude oil prices policies in the short term. On the other hand, fuel oil impact on crude oil prices in the short term is very low.

Regarding the price of Isfahan refinery short-term and long-term policy provide the following recommendations according to the results of this study:

Given that kerosene price has the greatest impact on crude oil prices in long-term. Therefore, prices policies to stabilize or rise and fall of oil prices should be based on the kerosene price in long-term. Momentums from the price of petroleum products price is effective in little time and quickly adjusted. Therefore, other affecting variables on of crude oil price should identify that can make better decisions to price policies at long-term and short-term.

- Providing a dynamic pattern that embrace all qualitative and quantitative variables on crude oil prices and can estimate and predict the severity of the impact in addition to identifying the influence of each variable on crude oil prices.
- Design a static pattern regardless of changes and time process according to experiences which oil price have over the past decades cannot be basis of decision or comment at identification of affecting factors on price of crude oil.

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