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ROLES OF OIL & GAS EXPLORATION & MARKETING CO SECTOR OF KSE STOCK RETURN: MEASUREMENT AND DETERMINATION

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ABSTRACT

The performance of a stock exchange does reflect the economic and financial health of a country whose economic variables affect a firm's returns. Both long-run and short-run connections with the macroeconomic variables influence the fluctuation share prices and return on investment. The purpose of the study in hand is to examine and analyze the relationship of macroeconomic variables of the national economy with Karachi Stock Exchange (KSE) stock returns and to provide critical guidance to investors' interest in the stock exchange trade. A sample of stock returns of 6 firms from Oil & Gas Exploration & Marketing Companies was selected on a monthly basis. The monthly data of eight variables over the maximum period of 11 years was used for analysis. The variables comprised of Market 100 Index (KSE 100), Broad Money, Exchange Rate, Interest Rate, Consumer Price Index, Gold Prices, Foreign Direct Investment, and Foreign Exchange Reserve. The Augmented Dickey-Fuller test and Co-integration were applied to obtain long-run, positive/negative and significant results (5%) respect to Oil & Gas Sector return with CPI, DR, EXRATE, FDI, GPRICE, KSE 100, and M2 ($T > 2$). FEXRES modestly affected the returns of Oil & Gas Sector. In respect of Oil & Gas Dev. Co, a major component of the sector, the coefficient (ECT) is positive and significant showing 100% impact on stock return. The coefficient is statistically insignificant of Mari Petroleum Company Ltd, Shell Pakistan Ltd, and has a negative sign in case of Pakistan Oil Fields Ltd, Pakistan State Oil Co. Ltd, Attock Petroleum Ltd. The obvious connection of the study is that the macroeconomic variables of the national economy affect the return and investment in the stock exchange trade.

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1. INTRODUCTION

The stock exchange is considered as the barometer of the economy of the country and its function to facilitate buyers and sellers of shares of business firms with the main objective to provide the liquidity in the share market. Where the returns on investment are affected by the movement of the share price, dividends price-earnings ratio and growth rate. The returns of the investors and speculators depend on the variation of stock prices.

In recent times, the macroeconomic variables are positive and the stock market 100 index touches 52000 marks. This research study finds out the impact of the change of macroeconomic variables on stock return with empirical evidence from the Karachi Stock Exchange (KSE). “There is a positive relationship between economic variables and share returns.

It is based on a broad assumption on the research hypotheses that there is a positive relationship between economic variables of the national economy and the share return of the Karachi Stock Exchange. The study seeks to determine the impact of seven macroeconomic variables plus the KSE 100 index on stock return. The seven macroeconomic variables are Broad Money (M2), Exchange Rate (EXR), Interest Rate (DR), Consumer Price Index (CPI), Gold Prices (GP), Foreign Direct Investment (FDI) and Foreign Exchange Reserve (FEXRES). Further, it attempts to discover/estimate the time of adjustment from equilibrium to disequilibrium. Trading in Karachi Stock Exchange carried on in 34 sectors, for this study a major sector consisting of Oil & Gas Exploration & Marketing Companies has been selected for this study.

There is a positive relationship between economic variables and shares returns. The study seeks to determine the long run and significant impact of seven macroeconomic variables plus the KSE100 Index on stock return. The justification behind this research study is to explore the variation in oil & gas exploration companies stocks. The research study further explores the long run and short-run relationship among macroeconomic variables and stock returns for the participants of the stock market.

2. CONCEPTUAL FRAMEWORK

The study has taken separate monthly returns from January 1978 till December 1998. The security returns have been taken to conclude and to capture the long-run volatility to avoid settlement delays (Faff et al., 2005). The study used the data on monthly bases to stay away from the false problem of correlation (Patra & Poshakwale, 2006).

We have collected the monthly closing stock prices of selected firms from Oil & Gas Exploration & Marketing Companies of Karachi Stock Exchange and variables of macroeconomics. The formula for returns is the logarithm difference between two consecutive stock prices,

$$Return = Ln \left(\frac{P_t}{P_{t-1}} \right) \quad (1),$$

whereas

P_t = current closing prices,

P_{t-1} = previous closing prices,

Ln = Natural log.

The returns of two consecutive stock prices of firms from different sectors listed in Karachi Stock Exchange were computed by taking log difference. The monthly data of the KSE-100 index and seven macroeconomics variables from January 2003 to December 2013 were used for this model. The measurement model is described as

$$K_i_t = b_0 + b_1 KSE_t + b_2 CPI_t + b_3 DR_t + b_4 EXRATE_t + b_5 FDI_t + b_6 FEXRES_t + b_7 GPRICE_t + b_8 M2_t + e_i_t \quad (2).$$

The firm's monthly stock return (K_i_t) is the dependent variable of the firm, where i represents the firm, and t stands for the month. b_i measures the sensitivity of share returns. Eight independent variables were tested in the same way. The variables are Market return (KSE) and the seven macroeconomic variables namely: Consumer Price Index (CPI), Foreign Direct Investment (FDI), Discount Rate (DR), Exchange Rate (EXRATE), Foreign Exchange Reserve (FEXRES), the Gold Prices(GPRICE) and Money Supply (M2), with e is an error term.

3. REVIEW OF LITERATURE

Important concepts used in stock trading and the related variables used in the study are mainly derived from previous studies on the subject. The appropriate tools of analysis are selected in relation to or with respect to the same literature.

The investigation links of the Karachi Stock Exchange 100 Index (KSE 100) with national economic variables and applied the Vector error correction model (VECM). The study used share returns, money supply (M2), industrial output and consumer price index (Nishat et al., 2004). It concluded that two macroeconomic factors i.e. industrial production and inflation had a long-run association with KSE 100 index. The results show that Industrial production is the only variable that is positive and significant where $p < .05$ in respect of stock returns, whereas Inflation has negative and insignificant ($p > .05$) connection to share return of the firm. It is investigated that long-run association with inflation and share returns by applying Johansen Co-integration on stock exchanges in Malaysia, United States and China (Tanggapan et al., 2011). The result indicates the long-run linkage between inflation and stock returns. The connection of economic variables with share market of Istanbul stock exchange by applying co-integration and the result indicated the long-run linkage between four economic factors and the stock returns (Acikalin et al., 2008). The connection is examined between variables of economy in India by on the basis of monthly data (Yadav & Lagesh, 2011). The findings indicated the long-run linkage among variables but did not show short-run nexus.

The time-series link among share market variation and variables of the economy in China by applying the GARCH VAR model (Wang et al., 2011). The results showed a bilateral linkage between inflation and share prices. It is investigated the relation of share price and rate of oil by applying co-integration to determine long-run connections (Masih et al., 2011). The results indicate a

significant long run link between the rate of oil and share prices in the Korean market. It is also investigated links among the economic variables (CPI, manufacturing output, M2, rate of oil) and stock index of Saudi Arabia using monthly data from 1994-2013 (Kalyanaraman & Tuwajri, 2014). The results concluded that the long-run relationship of all five macroeconomic indicators existed and affected the stock prices. The results of a short-run relationship of consumer price index found negative and positive in respect of industrial production.

They examined the influence of the macroeconomic on the Korean secondary market. This research concluded finding that according to the results of (VECM) Korean secondary market positively affected by macroeconomic factors (Goswami & Jung, 1997). The study links among economic factors with share markets in India by applying the co-integration model (Dasgupta, 2012). The results did not depict short-run links among macroeconomic factors and share market but further revealed that stocks are positively affected by the interest rate and manufacturing output when the share market was negatively affected by inflation.

4. RESEARCH METHODOLOGY

4.1 SAMPLING DESIGN

The share values of 7seven companies in Oil & Gas Exploration & Marketing have been used in the analysis. KSE 100 index and seven macroeconomic variables namely Broad Money (M2), Exchange Rate (EXRATE), Discount Rate (DR), Consumer Price Index (CPI), Gold Prices (GPRICE), Foreign Direct Investment (FDI) and Foreign Exchange Reserve (FEXRES) are selected as variables effecting stock returns, the selection of 7 firms was considered on the criteria of potentially market capitalization, and availability.

4.2 METHOD AND TOOL

This research uses secondary data collected from Monthly Statistical Bulletin published by the Federal Bureau of Statistics, the Business Recorder's website, the Karachi Stock exchange website for the period from January 2003 to 2013, a span of 132 months. The research tool is to use the Augmented Dickey-Fuller (ADF) and Co-integration.

4.3 HYPOTHESIS

The main study hypothesis is

H_a: Macroeconomic Variable has the relationship with stock return.

5. ANALYSIS

5.1 AUGMENTED DICKEY FULLER TEST

Table 1, presents the outcomes of the Augmented Dickey-Fuller Test (ADF) for the unit root of the stock return of Oil & Gas Companies. The outcome of all firms depicted significant ($p < .05$) for Oil and Gas companies, and accordingly the null hypotheses stand rejected and data at first difference of firms are found to be stationary.

Table 1: ADF Test for Unit Root- Oil & Gas Exploration & Marketing Companies

Variables	T-Statistics	1% C V	5% C V	10% C V	Coefficient	Std. Error	p-value
APL	-9.3227	-3.4970	-2.8906	-2.5823	-3.0514	0.3273	<0.001
MPC	-9.8916	-3.4828	-2.8844	-2.5790	-4.1001	0.4145	<0.001
OGCD	-9.3708	-3.4891	-2.8872	-2.5805	-3.9012	0.4163	<0.001
POL	-10.2018	-3.4828	-2.8844	-2.5790	-4.6291	0.4538	<0.001
PSO	-13.8278	-3.4820	-2.8841	-2.5788	-2.4750	0.1789	<0.001
SHELL	-9.4007	-3.4828	-2.8844	-2.5790	-3.7214	0.3958	<0.001

5.2 CO-INTEGRATION TESTS RESULTS OF OIL & GAS EXPLORATION & MARKETING COMPANIES

Table 2 shows the analysis result of co-integration rank test for Attock Petroleum Ltd.

Table 2: Attock Petroleum Ltd, (APL CPI DR EXRATE FDI FEXRES GPRICE KSE100 M2 Unrestricted Co-integration Rank Test, Trace)

No. of Co-integration Equation	Trace Statistics	5% Critical Value	Probability
None *	458.9258	197.3709	0.0001
At most 1 *	332.0592	159.5297	<0.0001
At most 2 *	223.9716	125.6154	<0.0001
At most 3 *	153.0654	95.75366	<0.0001
At most 4 *	97.56537	69.81889	0.0001
At most 5 *	59.61507	47.85613	0.0027
At most 6*	31.73724	29.79707	0.0295
At most 7	14.20327	15.49471	0.0775
At most 8	0.792064	3.841466	0.3735

The trace statistics show that the firm (**Attock Petroleum Ltd**) is significant ($P < .05$) and rejects the null hypothesis.

Table 3: Long Run Co-integration Equation and Error Correction Model

Long Run			Short-Run		
Variables	Coefficient	T values	Variables	Coefficient	T values
LOG(CPI)	0.082	-5.384	C	0.035	[0.953]
LOG(DR)	-0.233	5.796	D(CPI)	0.083	[5.385]
LOG (EXRATE)	0.008	-1.045	D(DR)	-0.233	[-5.796]
LOG(FDI)	-0.002	7.625	D(EXRATE)	0.008	[1.045]
LOG (FEXRES)	5.56E-05	-5.054	D(FDI)	-0.002	[-7.714]
LOG (GPRICE)	-0.0002	1.238	LOG(FEXRES)	5.56E-05	[5.077]
LOG (KSE100)	1.93E-05	-1.014	D(GPRICE)	-0.0002	[-1.198]
LOG(M2)	4.13E-05	-0.344	D(KSE100)	1.93E-05	[1.000]
			D(M2)	4.13E-05	[0.357]
			ECM(-1)	-0.005	[-0.025]
			R-squared	Adj. R-squared	F-statistic
			0.793	0.485734	2.579

Table 3 indicates a long-run positive and negative relationship for the *Attock Petroleum Ltd* with variables of the economy. Table 3 also confirms the significant relationship among *Attock Petroleum Ltd* return with CPI and FEXRES, DR and FDI ($T > 2$). It reveals positive and significant relationships among *Attock Petroleum Ltd* return with Consumer Price Index and Foreign Exchange Reserves but negative and significant association with Discount Rate and Foreign Direct Investment. EXRATE, GPRICE, KSE 100 and M2 are moderately affected in relation to returns of the *firm*. The table further indicates the ECT is negative and insignificant (approximately -0.0055). The long-run stock price is showing to balance within 1/-0.0055 month.

Table 4: Pakistan Oil Fields Ltd
(POL CPI DR EXRATE FDI FEXRES GPRICE KSE100 M2)

No. of Co-integration Equation	Trace Statistics	5% Critical Value	Probability
None *	479.741	197.371	0.0001
At most 1 *	338.498	159.530	<0.001
At most 2 *	233.952	125.615	<0.001
At most 3 *	155.579	95.754	<0.001
At most 4 *	105.591	69.819	<0.001
At most 5 *	61.714	47.856	0.0015
At most 6	25.660	29.797	0.139
At most 7	5.395	15.495	0.766
At most 8	0.080	3.841	0.777

The trace statistics show that the firm (Pakistan Oil Fields Ltd) is significant ($P < .05$) and rejects the null hypothesis.

Table 5: Long Run Co-integration Equation and Error Correction Model

Long-Run			Short-Run		
Variables	Coefficient	T values	Variables	Coefficient	T values
LOG(CPI)	0.1102	-2.9440	C	-0.0440	[-1.1366]
LOG(DR)	-0.2338	2.3883	D(CPI)	0.1102	[2.9437]
LOG(EXRATE)	0.0772	-4.2903	D(DR)	-0.2338	[-2.3882]
LOG(FDI)	-0.0041	6.7737	D(EXRATE)	0.0772	[4.2896]
LOG(FEXRES)	1.40E-05	-0.5833	D(FDI)	-0.0041	[-6.8151]
LOG(GPRICE)	0.0032	-6.0685	LOG(FEXRES)	1.40E-05	[0.5807]
LOG(KSE100)	0.0003	-8.3043	D(GPRICE)	0.0032	[6.1011]
LOG(M2)	-0.0018	6.7607	D(KSE100)	0.0003	[8.2459]
			D(M2)	-0.0018	[-6.8139]
			ECM(-1)	-0.4791	[-5.9117]
			R-squared	Adj. R-squared	F-statistic
			0.897378	0.744493	5.869618

Table 4 shows the analysis result of co-integration rank test for Pakistan Oil Fields Ltd. Table 5 indicates a long-run positive and negative relationship for Pakistan Oil Fields Ltd with variables of the economy. This table also confirms the significant relationship among Pakistan Oil Fields Ltd returns with CPI, EXRATE, GPRICE, KSE 100, DR, FDI and M2 ($T > 2$). It reveals positive and significant relationships among Pakistan Oil Fields Ltd return with CPI, EXRATE, GPRICE and KSE 100 but negative and significant association with DR, FDI, and M2. FEXRES is moderately affected in relation to the returns of Pakistan Oil Fields Ltd. The table further indicates the ECT is negative and significant (approximately -0.479). The long-run stock price is showing to balance within $1/-0.479 = 0.2.08$ month.

Table 6: Pakistan State Oil Co. Ltd (PSO CPI DR EXRATE FDI FEXRES GPRICE KSE100 M2)

No. of Co-integration Equation	Trace Statistics	5% Critical Value	Probability
None *	387.717	197.371	<0.001
At most 1 *	286.064	159.530	<0.001
At most 2 *	198.949	125.615	<0.001
At most 3 *	135.376	95.754	<0.001
At most 4 *	84.379	69.819	0.002
At most 5 *	56.924	47.856	0.006
At most 6*	34.764	29.797	0.012
At most 7*	16.144	15.495	0.040
At most 8	0.018	3.841	0.893

The trace statistics show that the firm (Pakistan State Oil Co. Ltd) is significant ($P < .05$) and rejects the null hypothesis.

Table 7: Long Run Co-integration Equation and Error Correction Model

Long-Run			Short-Run		
Variables	Coefficient	T values	Variables	Coefficient	T values
LOG(CPI)	0.1282	-4.977	C	-0.0563	[-1.106]
LOG(DR)	-0.3434	5.298	D(CPI)	0.1282	[4.977]
LOG(EXRATE)	0.0583	-4.738	D(DR)	-0.3434	[-5.298]
LOG(FDI)	-0.0021	4.927	D(EXRATE)	0.0583	[4.739]
LOG(FEXRES)	3.18E-05	-1.987	D(FDI)	-0.0021	[-4.881]
LOG(GPRICE)	0.0022	-6.386	LOG(FEXRES)	3.18E-05	[1.934]
LOG(KSE100)	0.0001	-5.419	D(GPRICE)	0.0022	[6.338]
LOG(M2)	-0.001	5.610	D(KSE100)	0.0001	[5.415]
			D(M2)	-0.0010	[-5.759]
			ECM(-1)	-0.4028	[-2.923]
			R-squared	Adj.R-squared	F-statistic
			0.840	0.601	3.513

Table 6 shows the analysis result of co-integration rank test for Pakistan State Oil Co. Ltd. Table 7 indicates a long-run positive and negative relationship for the Pakistan State Oil Co. Ltd with variables of the economy. Table 7 also confirms the significant relationship among Pakistan State Oil Co. Ltd returns with CPI, EXRATE, GPRICE, KSE 100, DR, FDI and M2 ($T > 2$). It reveals the positive and significant relationship among Pakistan State Oil Co. Ltd returns with CPI, EXRATE, GPRICE and KSE 100 but negative and significant association with DR, FDI, and M2 ($T > 2$). FEXRES is moderately affected in relation to returns of the firm. The table further indicates the ECT is negative and significant (approximately -0.4028). The long-run stock price is showing to balance within $1 / -0.4028 = -2.48$ months.

Table 8: Shell Pakistan Ltd. (SHELL CPI DR EXRATE FDI FEXRES GPRICE KSE100 M2)

No. of Co-integration Equation	Trace Statistics	5% Critical Value	Probability
None *	485.795	197.371	<0.001
At most 1 *	335.976	159.530	<0.001
At most 2 *	245.494	125.615	<0.001
At most 3 *	164.615	95.754	<0.001
At most 4 *	101.820	69.819	<0.001
At most 5 *	63.375	47.856	0.001
At most 6*	33.771	29.797	0.017
At most 7	7.514	15.495	0.519
At most 8	0.312	3.841	0.576

The trace statistics show that the firm (**Shell Pakistan Ltd**) is significant ($P < .05$) and rejects the null hypothesis.

Table 9: Long Run Co-integration Equation and Error Correction Model

Long-Run			Short-Run		
Variables	Coefficient	T values	Variables	Coefficient	T values
LOG(CPI)	0.3313	-8.5664	C	-0.0330	[-0.3903]
LOG(DR)	-0.8696	8.7195	D(CPI)	0.3313	[8.5665]
LOG(EXRATE)	0.0847	-4.2915	D(DR)	-0.8696	[-8.7192]
LOG(FDI)	-0.0060	8.7014	D(EXRATE)	0.0847	[4.2915]
LOG(FEXRES)	-7.63E-06	0.2825	D(FDI)	-0.0060	[-8.7241]
LOG(GPRICE)	0.0057	-9.0218	LOG(FEXRES)	-7.63E-06	[-0.2816]
LOG(KSE100)	0.0003	-7.0196	D(GPRICE)	0.0057	[9.0319]
sLOG(M2)	-0.0019	6.4200	D(KSE100)	0.0003	[7.0740]
			D(M2)	-0.0019	[-6.4570]
			ECM(-1)	0.0060	[0.0853]
			R-squared	Adj. R-squared	F-statistic
			0.802421	0.508070	2.726063

Table 8 shows the analysis result of co-integration rank test for Shell Pakistan Ltd. Table 9 indicates a long-run positive and negative relationship for Shell Pakistan Ltd with variables of the economy. Table 9 also confirms the significant relationship among Shell Pakistan Ltd return with CPI, EXRATE, GPRICE, KSE 100, DR, FDI and M2 ($T > 2$). It reveals positive and significant relationships among Shell Pakistan Ltd return with CPI, EXRATE, GPRICE and KSE 100 but negative and significant association with DR, FDI, and M2. FEXRES is moderately affected in relation to the returns of the firm. The table further indicates the ECT is negative and insignificant (approximately 0.0060). The long-run stock price is showing to balance within 1/0.0060 months.

Table 10: Mari Petroleum Company Ltd (MPC CPI DR EXRATE FDI FEXRES GPRICE KSE100 M2)

No. of Co-integration Equation	Trace Statistics	5% Critical Value	Probability
None *	459.8397	197.3709	0.0001
At most 1 *	317.5130	159.5297	<0.0001
At most 2 *	227.5585	125.6154	<0.0001
At most 3 *	153.0110	95.75366	<0.0001
At most 4 *	90.71821	69.81889	0.0005
At most 5 *	48.02446	47.85613	0.0482
At most 6*	24.53362	29.79707	0.1788
At most 7	8.465424	15.49471	0.4170
At most 8	0.113974	3.841466	0.7357

The trace statistics show that the firm (Mari Petroleum Company Ltd) is significant ($P < .05$) and rejects the null hypothesis.

Table 11: Long Run Cointegration Equation and Error Correction Model

Long-Run			Short-Run		
Variables	Coefficient	T values	Variables	Coefficient	T values
LOG(CPI)	-0.1489	9.219	C	0.0217	[0.319]
LOG(DR)	0.3572	-8.580	D(CPI)	-0.1489	[-9.219]
LOG(EXRATE)	-0.0058	0.680	D(DR)	0.3572	[8.580]
LOG(FDI)	0.0023	-8.418	D(EXRATE)	-0.0058	[-0.680]
LOG(FEXRES)	-2.14E-05	1.945	D(FDI)	0.0023	[8.455]
LOG(GPRICE)	-0.0011	4.958	LOG(FEXRES)	-2.14E-05	[-1.960]
LOG(KSE100)	-6.38E-05	3.038	D(GPRICE)	-0.0011	[-4.929]
LOG(M2)	0.0002	-1.854	D(KSE100)	-6.38E-05	[-2.986]
			D(M2)	0.0002	[1.836]
			ECM(-1)	0.1630	[0.624]
			R-squared	Adj. R-squared	F-statistic
			0.843624	0.610655	3.621194

Table 10 shows the analysis result of co-integration rank test for Mari Petroleum Company Ltd. Table 11 indicates a long-run positive and negative relationship for Mari Petroleum Company Ltd with variables of the economy. This table also confirms the significant relationship among Mari Petroleum Company Ltd return with DR, FDI, CPI, GPRICE and KSE 100 ($T > 2$). It reveals positive and significant relationships among Mari Petroleum Company Ltd return with DR, and FDI but negative and significant association with CPI, GPRICE and KSE 100. EXRATE, FEXRES, and M2 are moderately affected in relation to returns of the firm. The table further indicates the ECT is positive and insignificant (approximately 0.1630). The long-run stock price is showing to balance within 1/0.1630 months.

Table 12: Oil & Gas Dev. Co (OGDC CPI DR EXRATE FDI FEXRES GPRICE KSE100 M2)

No. of Co-integration Equation	Trace Statistics	5% Critical Value	Probability
None *	452.029	197.3709	0.0001
At most 1 *	340.032	159.5297	<0.0001
At most 2 *	249.600	125.6154	<0.0001
At most 3 *	173.869	95.75366	<0.0001
At most 4 *	104.728	69.81889	<0.0001
At most 5 *	56.384	47.85613	0.0065
At most 6	29.545	29.79707	0.0535
At most 7	6.827	15.49471	0.5979
At most 8	0.073	3.841466	0.7876

The trace statistics show that the firm (Oil & Gas Dev. Company) is significant ($P<.05$) and rejects the null hypothesis.

Table 13: Long Run Co-integration Equation and Error Correction Model

Long-Run			Short-Run		
Variables	Coefficient	T values	Variables	Coefficient	T values
LOG(CPI)	-0.3766	5.2086	C	0.0031	[.0845]
LOG(DR)	1.0088	-5.677	D(CPI)	-0.3766	[-.2077]
LOG(EXRATE)	-0.1760	4.588	D(DR)	1.0088	[5.668]
LOG(FDI)	0.0079	-6.336	D(EXRATE)	-0.1760	[-.588]
LOG(FEXRES)	-0.0001	3.750	D(FDI)	0.0079	[6.315]
LOG(GPRICE)	-0.0047	4.236	LOG(FEXRES)	-0.0001	[-.736]
LOG(KSE100)	-0.0005	5.590	D(GPRICE)	-0.0047	[-.223]
LOG(M2)	0.0028	-4.747	D(KSE100)	-0.0005	[-.535]
			D(M2)	0.0028	[.710]
			ECM(-1)	0.1097	[.503]
			R-squared	Adj. R-squared	F-statistic
			0.847	0.619	3.716

Table 12 shows the analysis result of co-integration rank test for Oil & Gas Dev. Co. Table 13 indicates a long-run positive and negative relationship for the Oil & Gas Dev. Co with variables of the economy. Table 13 also confirms the significant relationship between Oil & Gas Dev. Co returns with DR, FDI, M2, CPI, EXRATE, FEXRES, GPRICE and KSE 100 ($T>2$). It reveals positive and significant relationship among Oil & Gas Dev. Co returns with DR, FDI, and M2 but negative and significant association with CPI, EXRATE, FEXRES, GPRICE and KSE 100 ($T>2$). The table further indicates the ECT is positive and significant (approximately 0.1097). The long-run stock price is showing to balance within 1/0.1097 month.

6. CONCLUSION

There is a long-run, positive/negative and significant (5%) connection between Oil & Gas Sector return with CPI, DR, EXRATE, FDI, GPRICE, KSE 100, and M2 ($T>2$). FEXRES is modestly affected in relation to the return of the Oil & Gas Sector. The firms' return has long-run association with CPI, DR, EXRATE, FDI, GPRICE, KSE 100, and M2 ($T>2$) and directly affects the share prices. The long-run stock price shows convergence to equilibrium. Error Correction Model shows the short-run relationship with the return of Oil & Gas Sector, the coefficient (ECT) depicts positive and significant for the Oil & Gas Dev. The company, and positive and insignificant for Mari Petroleum Company Ltd, Shell Pakistan Ltd, and negative and significant in respect of Pakistan Oil

Fields Ltd, Pakistan State Oil Co. Ltd, and negative and insignificant for Attock Petroleum Ltd. The estimate of ECT explains the rate of adjustment from short-run towards the long-run equilibrium path.

The participant of the Karachi Stock Exchange may consider the movement of interest rate, exchange rate, and money supply while taking investment decisions. It is further recommended that the investors should consider fundamental analyses, technical analyses and political environment for participating in the stock exchange. The Securities and Exchange Commission of Pakistan should ensure the liquidity and price discovery of shares to encourage the participants of the stock exchange for investment.

7. AVAILABILITY OF DATA AND MATERIAL

Data can be made available by contacting the corresponding authors

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