

A COMPARISON OF ECONOMIC DATA: INDIA & A FEW OTHER COUNTRIES IN RECENT TIMES

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ABSTRACT

The economic scenario of a country, especially in a developing economy like India generally is affected by foreign exchange rate or international value of currency, crude oil price (if the country is not self-reliant in oil production), foreign exchange reserve etc. The main economic parameter GDP may be affected adversely by such factors if they are not favourable. This is an attempt to correlate these economic factors in recent times in the context of our country and a few developing economies and developed nations so that an idea can be developed how one factor is influenced by the other in respect of different countries. It has been found from the analysis of data of these factors that the GDP though influenced by forex (foreign exchange) rate with respect to dollar, crude oil price, foreign exchange reserve yet the degree of influence is not much significant in the context of India. Forex rate and crude oil price only lowly affects our GDP. However, Sensex or stock market index is quite sensitive to the fluctuation of GDP. For other developing economies and developed nations, under the study, the stock market indexes are quite indifferent or insensitive to behaviour of GDP. Only Indian stock market, out of these countries, is susceptible to behaviour of GDP. In the context of India, this study throws open wider scope for further analysis of various other economic parameters which usually contribute to GDP of the country in recent times. Apparently the GDP is thus quite protected, if not completely, from the adverse behaviour of these important parameters (crude oil price, forex rate & reserve) probably because of other economic parameters which are driving our economy and have developed buffer or cushion solidly in recent times.

Keywords: GDP, Forex Rate, Crude Oil Price, Stock Index.

JEL Classification: H54, G32.

Introduction

In last one decade the fluctuation of crude oil price has caused much impact on GDP of our country. The Economic Survey 2018 of India estimates that every \$10 per barrel increase in the price of oil reduces growth by 0.2-0.3 percentage points. The comprehensive annual document on the Indian economy, which was tabled in the Parliament by Finance Minister, [said](https://www.financialexpress.com/market/commodities/how-rising-crude-oil-price-affects-indias-gdp-growth-inflation-and-current-account-deficit/1035029/) that country's economic growth was expected to grow between 7 and 7.5% in the fiscal year 2019, while flagging concerns over rising crude oil price. (<https://www.financialexpress.com/market/commodities/how-rising-crude-oil-price-affects-indias-gdp-growth-inflation-and-current-account-deficit/1035029/> published on 29/1/2018)

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The real income and spending of the government is affected by because of such rise in price. Again dwindling value of rupee against the dollar increases the cost of imports. Since India imports more than 80 percent of its crude oil requirement, it is resulting in huge dollar outflows. Pressure on foreign currency specially on dollar increases. Economic growth faces some retardation. To cope with the combined pressure from two factors it needs special attention.

(<https://www.moneycontrol.com/news/business/markets/6-ways-in-which-a-falling-dollar-rupee-will-impact-the-indian-economy-2976931.html> 23/9/18)

Forex rate with respect to dollar and crude oil price are thus assumed to affect the GDP low to moderate level and in turn the Sensex or the stock market of the country. These two factors undoubtedly are sound yard stick of measuring the strength or weakness of the economy.

The Indian context here is compared with similar data of a few developing and developed countries and attempt has been made to draw a sketch of state of affairs of these factors with respect to GDP.

Objective

To develop an analytical process so that the impact of these factors on the GDP can be identified for different countries in comparison to India.

Source of Data

Data have been collected from reliable secondary source like world bank website, <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=SA>,

Method of Study

Study involves selection of seven countries at random across the globe and Preparation of seven tables in which data of five parameters GDP, stock index, Forex rate of dollar, crude oil price, foreign exchange reserve have been given over a period of twelve years.

Below of each table are given correlation of different items with GDP next interpretation for each country is given also. Finally one table 8 has been prepared to view overall status of different economic factors in relation to GDP for different countries.

India

Table 1

	Crude Oil Price in \$	% Change	US Dollar rate Against Rupee	% Change	GDP %	% Change	Sensex	% Change	Reserve in billion Dollar	% Change
2007	69.04		0.025		7.66		20286.99		276.58	
2008	94.1	0.363	0.021	-0.16	3.09	-4.57	9647.31	-0.52	257.42	-0.069
2009	60.86	-0.353	0.022	0.05	7.86	4.77	17464.81	0.81	284.68	0.106
2010	77.38	0.271	0.022	0.00	8.5	0.64	20509.09	0.17	300.48	0.056
2011	107.46	0.389	0.019	-0.14	5.24	-3.26	15454.92	-0.25	298.74	-0.006
2012	109.45	0.019	0.018	-0.05	5.46	0.22	19426.71	0.26	300.43	0.006
2013	105.87	-0.033	0.016	-0.11	6.39	0.93	21170.68	0.09	298.09	-0.008
2014	96.29	-0.090	0.016	0.00	7.41	1.02	27499.42	0.30	325.08	0.091
2015	49.49	-0.486	0.015	-0.06	8.00	0.59	26117.54	-0.05	353.32	0.087
2016	40.76	-0.176	0.015	0.00	8.26	0.26	26626.46	0.02	361.69	0.024
2017	52.51	0.288	0.016	0.07	7.04	-1.22	34056.83	0.28	412.61	0.141
2018	69.78	0.329	0.014	-0.13	6.12	-0.92	36068.33	0.06	399.17	-0.033
2019	64.04	-0.082	0.014	0.00	4,18	-1.94	41253.74	0.14	463.47	0.161

Table 1A

India	Correlation	Remarks	Interpretation
GDP & Index	0.551	Poor relation	Indian Sensex is less responsive to status of GDP
GDP & Currency	0.581	Poor relation	GDP and currency maintain poor relation
GDP & Crude	-0.467	Poor negative relation	Rise of Crude oil price suppresses GDP only in poor manner
GDP & Reserve	0.358	Quite Poor relation	GDP ignores forex reserve content

Table 2
South Korea

Year	Crude oil Price in \$	Change	US Dollar rate Against Currency	Change	GDP	Change	Index (Kospi)	Change	Reserve in billion Dollar	Change
2007	69.04		0.00106		5.8		1897.13		262.53	
2008	94.1	0.363	0.00076	-0.283	3.01	-2.79	1124.47	-0.407	201.54	-0.232
2009	60.86	-0.353	0.00086	0.132	0.79	-2.22	1682.77	0.497	270.44	0.342
2010	77.38	0.271	0.00089	0.035	6.8	6.01	2041.66	0.213	292.14	0.080
2011	107.46	0.389	0.00086	-0.034	3.69	-3.11	1825.74	-0.106	306.93	0.051
2012	109.45	0.019	0.00094	0.093	2.4	-1.29	1997.05	0.094	327.72	0.068
2013	105.87	-0.033	0.00095	0.011	3.16	0.76	2011.34	0.007	345.69	0.055
2014	96.29	-0.090	0.00092	-0.032	3.2	0.04	1915.59	-0.048	362.83	0.050
2015	49.49	-0.486	0.00085	-0.076	2.81	-0.39	1961.31	0.024	366.71	0.011
2016	40.76	-0.176	0.00083	-0.024	2.95	0.14	2026.46	0.033	370.15	0.009
2017	52.51	0.288	0.00094	0.133	3.16	0.21	2467.49	0.218	388.8	0.050
2018	69.78	0.329	0.00089	-0.053	2.91	-0.25	2041.04	-0.173	403.08	0.037
2019	64.04	-0.082	0.00087	-0.022	2.03	-0.88	2197.67	0.077	408.82	0.014

Table 2A

South Korea	Correlation	Remarks	Interpretation
GDP & Index	-0.144	Negative Poor relation	currency value against dollar, stock market index (Kospi) and forex reserve virtually have no relation with GDP. crude oil price only affects GDP in poor way
GDP & Currency	-0.102	Negative Poor relation	
GDP & Crude	0.496	Poor relation	
GDP & Reserve	-0.259	Negative Poor relation	

Table 3

Brazil

	Crude Oil Price in \$	Change	US Dollar rate Against Currency	Change	GDP %	Change	Index	Change	Reserve in billion Dollar	Change
2007	69.04		0.56							
2008	94.1	0.363	0.43	-0.232	5.09	-0.98	37550	-0.412	193.78	0.075
2009	60.86	-0.353	0.57	0.326	-0.13	-5.22	68588	0.827	238.54	0.231
2010	77.38	0.271	0.6	0.053	7.53	7.66	69305	0.010	288.57	0.210
2011	107.46	0.389	0.54	-0.100	3.97	-3.56	56754	-0.181	352.01	0.220
2012	109.45	0.019	0.49	-0.093	1.92	-2.05	60952	0.074	373.16	0.060
2013	105.87	-0.033	0.42	-0.143	3	1.08	51507	-0.155	358.82	-0.038
2014	96.29	-0.090	0.38	-0.095	0.5	-2.5	50007	-0.029	363.57	0.013
2015	49.49	-0.486	0.25	-0.342	-3.55	-4.05	43350	-0.133	356.46	-0.020
2016	40.76	-0.176	0.31	0.240	-3.28	0.27	60227	0.389	364.98	0.024
2017	52.51	0.288	0.3	-0.032	1.32	4.6	76402	0.269	373.96	0.025
2018	69.78	0.329	0.26	-0.133	1.32	-0.01	87887	0.150	374.71	0.002
2019	64.04	-0.082	0.25	-0.038	1.14	-0.18	115645	0.316	356.89	-0.048

Table 3A

Brazil	Correlation	Remarks	Interpretation
GDP & Index	-0.062	Very poor relation	Stock market index does not care the status of GDP
GDP & Currency	-0.122	Negative very poor relation	GDP maintains very poor negative relation
GDP & Crude	0.758	positive correlation	Rise of crude oil price pushes GDP upward and vice versa
GDP & Reserve	0.453	Moderately poor correlation	Forex reserve content maintains poor effect on GDP

Table 4

MEXICO	Crude Oil Price in \$	% Change	US Dollar rate	% Change	GDP	% Change	Stock Index	% Change	Reserve in Billion Dollar	Change
2007	69.04		0.091		2.29		29536.83		87.21	
2008	94.1	0.363	0.089	-0.02	1.14	-1.15	22380.32	-0.242	95.3	0.093
2009	60.86	-0.353	0.074	-0.17	-5.29	-6.43	32120.47	0.435	99.89	0.048

2010	77.38	0.271	0.079	0.07	5.12	10.41	38550.79	0.200	120.58	0.207
2011	107.46	0.389	0.08	0.01	3.66	-1.46	37077.52	-0.038	149.21	0.237
2012	109.45	0.019	0.076	-0.05	3.64	-0.02	43705.83	0.179	167.08	0.120
2013	105.87	-0.033	0.078	0.03	1.35	-2.29	42727.09	-0.022	180.2	0.079
2014	96.29	-0.090	0.075	-0.04	2.85	1.5	43145.66	0.010	195.68	0.086
2015	49.49	-0.486	0.063	-0.16	3.29	0.44	42977.5	-0.004	177.6	-0.092
2016	40.76	-0.176	0.053	-0.16	2.63	-0.66	45642.9	0.062	177.97	0.002
2017	52.51	0.288	0.053	0.00	2.11	-0.52	49354.42	0.081	175.47	-0.014
2018	69.78	0.329	0.052	-0.02	2.12	0.09	41640.27	-0.156	176.39	0.005
2019	64.04	-0.082	0.047	-0.10	-0.06	-2.26	43541.02	0.046	183.06	0.038

Table 4A

Mexico	Correlation	Remarks	Interpretation
GDP & Index	-0.417	Poor negative correlation	Mexican GDP practically maintains poor correlation with crude oil price, currency status, and forex reserve. Stock index maintains negative relation with GDP. These factors fail to hit the status of GDP.
GDP & Currency	0.512	poor correlation	
GDP & Crude	0.390	Poor correlation	
GDP & Reserve	0.270	Poor correlation	

Table 5

Italy	Crude Oil Price in \$	% Change	us dollar rate	% Change	GDP	% Change	Stock Index	% Change	Reserve in Billion Dollar	% Change
2007	69.04		0.00076		1.49		38554	-6.95	56.94	
2008	94.1	0.363	0.000719	-0.05	-0.96	-2.45	19460	-49.53	51.64	-0.093
2009	60.86	-0.353	0.00074	0.03	-5.28	-4.32	23248	19.47	66.12	0.280
2010	77.38	0.271	0.00069	-0.07	1.71	6.99	20173	-13.23	96.21	0.455
2011	107.46	0.389	0.000668	-0.03	0.71	-1	15090	-25.20	110.14	0.145
2012	109.45	0.019	0.000681	0.02	-2.98	-3.69	16273	7.84	112.8	0.024
2013	105.87	-0.033	0.000712	0.05	-1.84	1.14	18968	16.56	99.39	-0.119
2014	96.29	-0.090	0.000627	-0.12	0	1.84	19012	0.23	111.86	0.125
2015	49.49	-0.486	0.000562	-0.10	0.78	0.78	21418	12.66	105.93	-0.053
2016	40.76	-0.176	0.000544	-0.03	1.29	0.51	19234	-10.19	116.37	0.099
2017	52.51	0.288	0.000619	0.14	1.67	0.38	21853	13.61	130.22	0.119
2018	69.78	0.329	0.000591	-0.05	0.8	-0.87	18324	-16.15	120.66	-0.073
2019	64.04	-0.082	0.00058	-0.02	0.3	-0.5	23506	28.28	129.19	0.071

Table 5A

Italy	Correlation	Remarks	Interpretation
GDP & Index	-0.270	Poor negative correlation	Stock index does not take cognizance of GDP
GDP & Currency	-0.241	poor negative correlation	Practically no relation with GDP
GDP & Crude	0.374	Poor correlation	Change in crude oil price affects GDP but in a poor way
GDP & Reserve	0.044	Very poor relation	The growth or decline of forex reserve has no impact on GDP

Table 6

Indonesia	Crude oil Price in \$	%Change	US Dollar Rate	% Change	GDP	% Change	index	% Change	Reserve in Billion Dollar	% Change
2007	69.04		0.000106		6.35		2745.83		56.94	change
2008	94.1	0.36	0.000091	-0.14	6.01	-0.34	1355.41	-0.51	51.64	
2009	60.86	-0.35	0.000105	0.15	4.63	-1.38	2534.36	0.87	66.12	-0.093
2010	77.38	0.27	0.000111	0.06	6.22	1.59	3703.51	0.46	96.21	0.280
2011	107.46	0.39	0.000110	-0.01	6.17	-0.05	3821.99	0.03	110.14	0.455
2012	109.45	0.02	0.000104	-0.05	6.03	-0.14	4316.69	0.13	112.8	0.145
2013	105.87	-0.03	0.000082	-0.21	5.56	-0.47	4274.18	-0.01	99.39	0.024
2014	96.29	-0.09	0.000081	-0.02	5.01	-0.55	5226.95	0.22	111.86	-0.119
2015	49.49	-0.49	0.000072	-0.11	4.88	-0.13	4593	-0.12	105.93	0.125
2016	40.76	-0.18	0.000074	0.03	5.03	0.15	5296.71	0.15	116.37	-0.053
2017	52.51	0.29	0.000074	0.00	5.07	0.04	6355.65	0.20	130.22	0.099
2018	69.78	0.33	0.000069	-0.07	5.17	0.1	6194.5	-0.03	120.66	0.119
2019	64.04	-0.08	0.000072	0.04	5.02	-0.15	6299.54	0.02	129.19	-0.073

Table 6A

Indonesia	Correlation	Remarks	Interpretation
GDP & Index	-0.312	Poor negative correlation	Stock market responds in a poor negative manner to performance of GDP
GDP & Currency	-0.300	Poor negative correlation	Currency against dollar affects GDP in a poor negative manner
GDP & Crude	0.679	Moderately positive correlation	Rise of Crude oil price moderately pushes GDP and vice versa
GDP & Reserve	0.098	Very poor relation	Forex reserve practically has little or no effect on GDP

Table 7

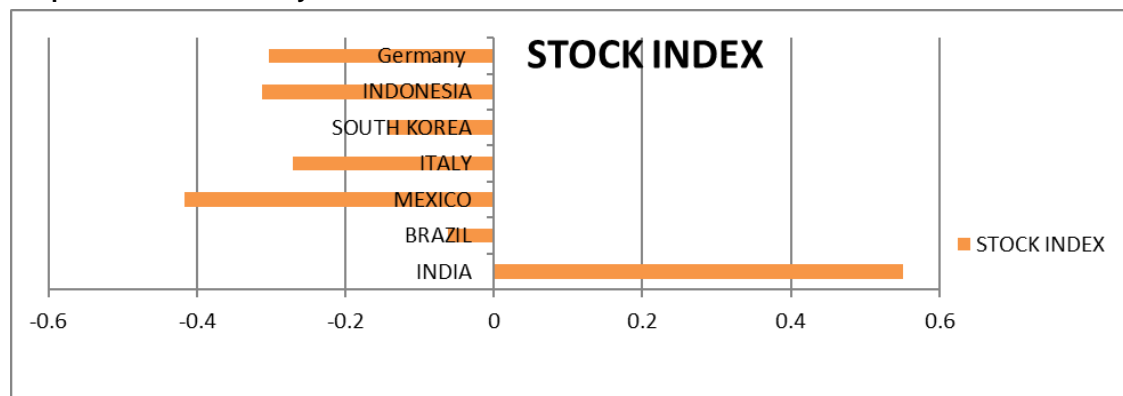
Germany	Crude Oil Price \$	% Change	Us Dollar Rate	% Change	GDP %	% Change	Index	% Change	Forex Reserve in Billion Dollar	% Change
2007	69.04		0.75		2.98		8067.32		135.93	
2008	94.1	0.36	0.71	-0.05	0.96	-2.02	4810.2	-0.40	138.56	0.02
2009	60.86	-0.35	0.74	0.04	-5.69	-6.65	5957.43	0.24	179.04	0.29
2010	77.38	0.27	0.68	-0.07	4.18	9.87	6914.19	0.16	215.98	0.21
2011	107.46	0.39	0.66	-0.03	3.93	-0.25	5898.35	-0.15	234.1	0.08
2012	109.45	0.02	0.67	0.02	0.42	-3.51	7612.39	0.29	248.86	0.06
2013	105.87	-0.03	0.71	0.05	0.44	0.02	9552.16	0.25	198.54	-0.20
2014	96.29	-0.09	0.62	-0.12	2.21	1.77	9805.55	0.03	193.48	-0.03
2015	49.49	-0.49	0.56	-0.10	1.49	-0.72	10743.01	0.10	173.73	-0.10
2016	40.76	-0.18	0.54	-0.03	2.23	0.74	11481.06	0.07	184.03	0.06
2017	52.51	0.29	0.61	0.14	2.6	0.37	12917.64	0.13	199.98	0.09
2018	69.78	0.33	0.59	-0.05	1.27	-1.33	10558.96	-0.18	198.03	-0.01
2019	64.04	-0.08	0.57	-0.02	0.56	-0.71	13249.01	0.25	224.03	0.13

Table 7A

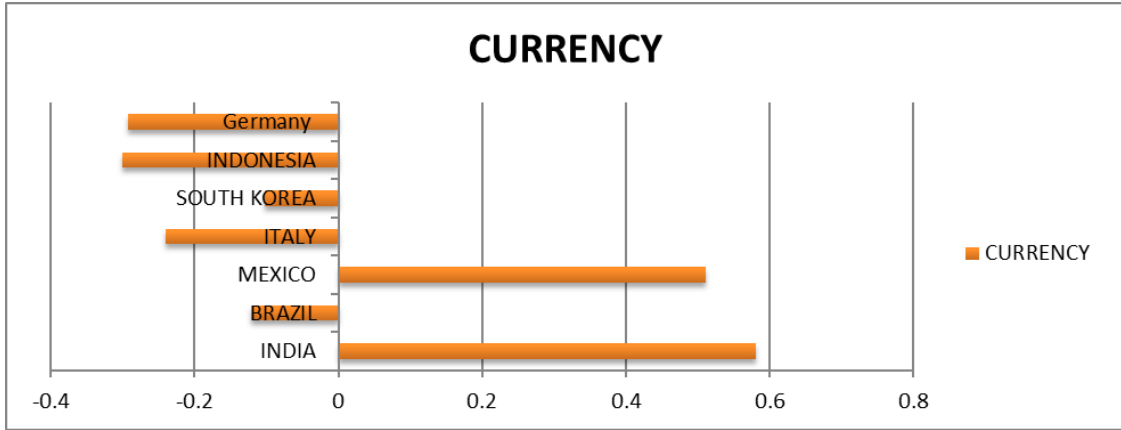
Correlation		Remarks	Interpretation
GDP & Index	-0.303	Poor negative correlation	Practically GDP has no effect on stock market
GDP & Currency	-0.292	Poor negative correlation	Practically GDP and currency bears no relationship
GDP & Crude	0.530	moderately poor positive correlation	Crude oil price has moderately poor effect on GDP
GDP & Reserve	-0.286	Poor positive correlation	Forex reserve content affects GDP in a poor way

Table 8: Overall Picture

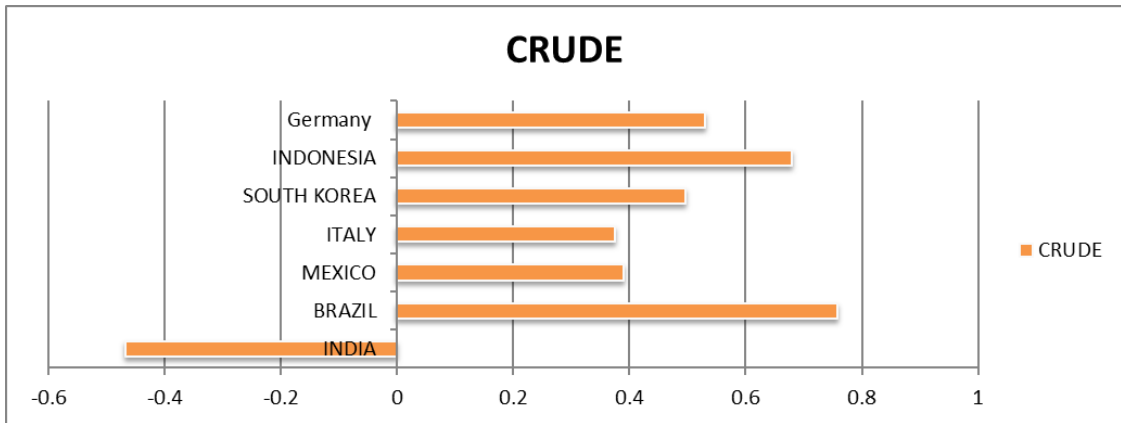
Correlation with GDP	India	Brazil	Mexico	Italy	South Korea	Indonesia	Germany
Index	0.551	-0.062	-0.417	-0.270	-0.144	-0.312	-0.303
Currency	0.581	-0.122	0.512	-0.241	-0.102	-0.300	-0.292
Crude	-0.467	0.758	0.390	0.374	0.496	0.679	0.530
Forex reserve	0.358	0.453	0.270	0.044	-0.259	0.098	-0.286

Graphical Picture of Analysis

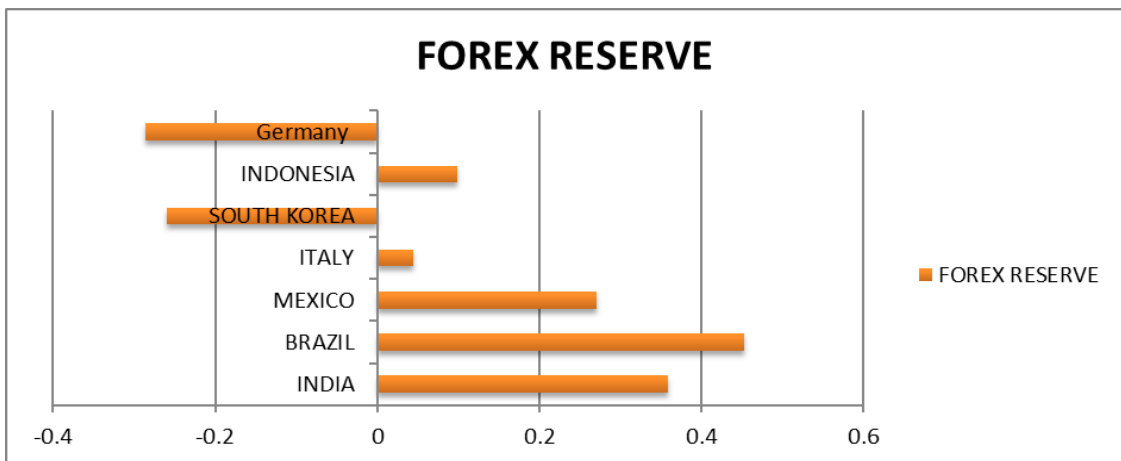
Only Indian stock market to some extent bears relationship with GDP, others do not follow in the period under consideration.



GDP of India and Mexico to some extent sensitive bear relationship with currency fluctuation.



Indian GDP behaves strangely with respect to fluctuation of crude oil price. Others more or less take cognizance of behaviour of crude oil price when GDP is concerned.



Out of these seven countries, five countries including India maintain some relationship between GDP and forex reserve though in poor manner. GDPs of two others are least reactive to forex reserve.

Discussion

The above study is very simple but throws some light on the behaviour of GDP of Indian economy. A more comprehensive and finer statistical analysis should be done by the experts in statistical analysis to identify the significance of such correlation.

The Indian economy is quite peculiar in the context of status of stock market index, forex rate with respect to dollar and crude oil price in comparison to others.

The crude oil price, which is the major cause of concern for countries not self-reliant in the front, affects GDP of the rest of the countries under consideration in the positive manner. When crude oil price increases GDP increases presumably because rise in prices of goods and services. However, the effect is poor.

Conclusion

The situation of India is quite different and opposite, though the effect is poor. This is quite peculiar.

However, all these economies are quite resistant to aforesaid three major factors. Only GDP of Brazil is however comparatively significantly associated with crude oil price.

Forex reserve change insignificantly affects GDP in all these cases.

The study shows that overall Indian economy somehow gets enough strength from different sectors of economy such as agriculture, service sectors etc. It is true India is self-reliant on food and can absorb various shocks if not fully on issues not under her control.

