

Case Study

A Case Study of Macro Economical Factors Contribution and Their Inter Linkages in Indian Economy Development

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Abstract

The Indian economy's stature has changed from developing country to fastest developing country in the last two decades. One foundation and a key impetus for this were received in the form of the financial reforms of early 1990s. The chief strand in these overarching reforms was a reasonably novel direction to the economy known as Liberalization. It introduced privatization & globalization in Indian economy. In the ensuing years various macroeconomic measures came into picture and boosted economic expansion and development.

This case covers the role and scope of various Indian macroeconomic variables in these economic expansion and development as well as to undertake a treatment of their mutual and dynamic association in the long run, especially in the Indian context.

This study brings to fore certain important findings, and the understanding of behavior of select variables should also stand us in good stead as regards devising new policies for the future especially with the aim of attaining inclusive and sustainable growth

Key Words –*Financial reform; Macroeconomic variables; Privatization; Globalization; Liberalization; Economy.*

Introduction

Brief History – *One leading financial research company was closely following the development trends of Indian economy since financial reforms to estimate global rank for India. The company established the unequivocal contributions of the 90s reforms to development in Indian economy but also anticipated & advocated another wave of reforms for speedier economic progress in the ensuing times. For instance, the last decade recorded a mixed trend of steady and fluctuating growth for Indian economy; thus, while at times the economy witnessed growth and so optimism was exuded, while at other times the trend witnessed was negative and as a result the feeling was not sanguine but one of apprehension and doubt. It was not an easy task for the Company to take a definitive stance on the matter, because of difficulty in identifying a principled and steady pattern in economic trends. For instance, although scrupulous and competing banking protected the nation's economy against global recession, in the last few years the sector itself has not witnessed continuation of the same, even after the severity of the recession showed abatement. Given the cloudy nature of the scheme of things, the company sought to undertake impact assessment of financial liberalizations at various levels.*

Main issues – *After arrival of new government in 2014, investor sentiments witnessed a progressive shift which holds potential for a sound growth rate in the years to come. Capital market growth touched new highs, but market volatility still persisted and posed a thorny challenge to continual growth. While on one hand such factors as high consumption played their part in sustaining the Indian economy, struggle for domestic capital investment remained a perennial issue. Thanks to a hazy, nebulous and a constant flux in the giant boiling pot of Indian economy, it was an exceedingly tricky task for the company to reach a principled, definitive and lasting conclusion. It was thus suggestive as well as instructional to dig deeper and explore into dynamic relationships between various macroeconomic factors in order for the company to arrive at some reasonable and conclusive set of ideas about progress in Indian economy.*

Main Body:**Indian Economy – Before and After Reforms of the 1990s**

If we cast a detailed glance on the annals of Indian economy in the second of 29th century, we see that it unfolded with two massive economic waves – one that started in 1950 and continued for over four decades, and another that took off the ground in the early 1990s. In the second phase, India recorded fastest growth rates that lasted for more than a decade. At the risk of assigning lofty valuations to this growth but nevertheless not exaggerating in the slightest, it would be reasonable to remark here that the kind of growth Indian witnessed created some positive ripples in global markets worldwide and led India to be recognized as a large and fertile market for global investors across the globe.

Numerous parameters of growth saw upsurge in this phase including per capita income, life style and industrial development, rapid expansion of service sector, capital market and intellectual human capital.

If we collate the overarching pictures of the first and second wave one aspect that clearly stands out is that the factors that contributed to giving immense boost to the economy post 1990s reforms were missing from the era before that. This indicates that only a limited number of variables pushed the economy till the 1990s. Whereas coming onto the scene of other discrete and forward-looking factors (exemplified above by economic liberalization) changed the ballgame and took Indian economy into a new era of progress. This allows us to ask a rather difficult question: Why the Indian economy is stagnant in the past one decade (or, to put it moderately – has not seen the kind of growth it should have) despite the presence of all the factors that led to unprecedented progress in post 1990s reforms. We delve into this aspect in the present study.

Observing the economy in the present scenario, it is argued that the missing factors are sustainability, inclusive growth and financial inclusion; and these gaps can be filled with the second stage of reforms. What will the second stage of reforms propose is a question of further research? Particularly, the involvement of all compositions calls for critical valuations and a policy design is required accordingly.

Undoubtedly, the Indian economy requires eradicating the sluggishness again to accelerate with

a high pace, but there is no single parameter or component which forms the essence base and can lead to substantial contribution.

Role of Various Macroeconomic Factors in Indian Development –

In the broader sense it is evidently clear that macroeconomic variables have made unparalleled contribution in transformational growth of Indian economy in last two decades. But still, it is unclear how the different permutations and combinations of their summed up effects yielded positive and negative growth patterns. Thus, the project of extracting a meaningful explanation about their role in Indian economy posed a good opportunity to the author.

The author used his statistical experience gained as a professional economist to realize that the best way to measure the risk of any instrument is to work out the standard deviation or variance of its returns over a defined period.

The author used the data on annual returns of select twelve variables to work out these measures.

Exhibit 1 presents the mean return and standard deviation of all selected variables between years 1990-91 to 2011-12.

Paramjeet also thought that a graphical description (shows at Exhibit 2) of data may help him to gain insights about the contribution of various variables into economies expansion. It is revealed that the every single factor has made *ceteris paribus* steady contribution to growth seen in the last twenty one years. Although it is tricky to figure out a definitive and principled relationship between the factors across different situations, what we *can* be sure of is their unquestionable role in the nation's economic expansion. Furthermore, a detailed analysis is called for if we are to draw patterns in contributions of these factors for their long term performance and across different situations.

Followings are the outcome of last 21 years (shows in Exhibit 3) –

- I. GDP – the major index of growth – recorded steady increase (shown in exhibit 1) with highest growth rate of 18% recorded in 2010–11, when it was below 10% from 2000 through 2003. Export volume has demonstrated a mixed trend: Twice it recorded a growth as high as 35% first in

1991-92 and 2010-11. This is especially significant because of the difference in volume in these two time periods. The lowlight of downward trend was hit in 2008-09 when it recorded a meager 1% growth for which the reason could be placed squarely on the ripples of global recession. Further in duration of 2 decades total volume was increased by 4403%.

- II. Volume of import has recorded positive figures every year except year 2009-10 with a negative rate of 1% compare to previous year. This was again due chiefly to global recession.

The highest rate of 39% was recorded in 2011-12. Increase rate of 5330% in volume was recorded in total study period.

- III. Data on inflation brings to fore a varying trend: inflation was at its peak in 1990-91 with the figure standing at 13.68%, and in 2000-01 it stood at 3.68%. Also, the maximum positive difference with 66.2% was recorded in the year 1997-98 compare to previous year, while in consequent year 1998-99 it was recorded with highest negative changes. Moreover, inflation rate ranged from 3 to 5% between 1998-99 and 2004-05.

- IV. Government expenditure figure put the increased volume of 11.27% between the years 1990-91 to 2011-12. This is certainly a stout indicator of economic expansion.

However, the highest growth rate of 25% was recorded in the year 2008-09 compared to preceding year.

- V. Volume of FDI has evidenced extraordinary trend. Overall it was increased tremendously by 33957%. In addition the highest increase of 236% received in 1991-92 as volume was very less in 1990-91. Whereas in the year 2009-10 volume was 40.8% less received, which was also the highest negative growth compare to previous year in the study period.

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highest negative growth compared to previous year in the study period.

- VI. Sensex, the prominent index of Indian capital market BSE, has also put up a remarkable growth in last year 21 years. Previously it was below 2000 points, and then scaled up by 10 times of growth by reaching 20000 in the year 2009-10.

Here fluctuation was related to various factors as sensex is composite of top 30 stock performances only. But till 2004-05 it recorded a constant growth trend and in next two years Sensex showed the excessive speedy growth with consistent 50% yearly changes. Following year faced the hit of global recession which had lessened it by 52% and took to 9647 point. Following year was hit by global recession and the figure came down by 52% and settled at 9647 points. Highest growth of 81% was recorded in the year 2008-09 based mainly on stock recovery and overall economy being in healthy shape.

- VII. It should be noted that the major foreign institutional investors and stakeholders of Indian capital market also made sound contributions to the nation's economic expansion, although their negative aspect was their selling of investment either to equity or to debt. Highest volume was received in the year 2010-11.

Closing Section

Inter-Linkages Between Macroeconomic Variables-

Is it contentious to advocate interrelationship within the macroeconomic variables? And is the summed up contribution of such variables to economy tantamount to implicitly alluding to an inherent functional relationship between them? In light of these crucial questions, it is imperative to understand whether or not functional relationship exists within these variables—and if so, how we might develop a framework for the same, so that their overall contribution to economy can be rendered intelligible and reasonably predictive. Thus, here, it would be interesting to propose a twofold framework of macroeconomic variables and their relationship with economy as follows: I] At the fine-grained level the

framework addresses the issue of inherent and intrinsic interrelationship among within the variables;

- II) The next gross level could deal with the issue of two ways the variables could be understood as contributing to the economy: IIa) A macroeconomic variable's contribution in and of itself; and IIb) A macroeconomic variables contribution conjointly with other variables.

It would be interesting to see how I] affects IIb)

A principled account that caters to all these aspects of macroeconomic variables and economy is strongly in order if our goal is no less than to construct a robust economic model.

Some aspects of these undertaken here has allowed the author to derive conclusions as regards economic expansions of the last two decades.

For this purpose Paramjeet thought to use econometric model Granger causality for this. Before applying he checked stationarity of all time series data through the Augmented Dickey-Fuller test and after conformity of stationarity of time series data, he checked pair wise analysis through Granger model between the variables.

The Granger approach allows us to address the question of whether x causes y allows to examine how much of the current y can be explained by past values of y, and then to see whether adding lagged values of x improve the explanation.

Here y is said to be Granger-caused by x if x helps in the prediction of y, or equivalently if the coefficients on the lagged x's are statistically significant. It is relevant to note that two-way causation is normally the case; x Granger causes y and y Granger causes x. It has to be noted that "x Granger causes y" does not mean that y is an effect or a result of x. Granger causality measures preferences and information content, but does not by itself indicate causality in the more common use of the term. This model works on two assumptions –

- 1) Past can cause the present and future
- 2) Every cause carries few consideration and issues of association.

Here Paramjeet used the Eviews software to calculate the values at lag 2 and for statistical interpretation of

Null hypothesis was adopted that "X does not granger cause Y". Accordingly all twelve variables in pairs were tested. The analysis part was based on received p value. If p value is more than 5% a null hypothesis was accepted, which implied no impact of one variable on other variable in pair. And in case of less than 5%, impact of one variable on other variable has is confirmed. Finally he observed fourteen pairs from one hundred thirty two pairs of twelve variables (shows at Exhibit 4) which mutually impacted and showed a long run association together. They were named -

- 1) GDP & Export
- 2) Export & Import
- 3) Total trade & Export
- 4) FDI & Government expenditure
- 5) Sensex & FDI
- 6) Trade openness & FDI
- 7) FIIs & GDP
- 8) Trade openness & FIIs
- 9) Inflation & GDP
- 10) Total trade & GDP
- 11) Sensex & Import
- 12) Total trade & Import
- 13) Total trade & Sensex
- 14) Trade openness & Sensex.

Assignment questions –

1. Give a brief account of your understanding of the case and the prominent learning outcomes therein.
2. Write a brief note about foreign institutional investors & foreign direct investment contributions into economic development.
3. Does capital market growth contribute to economies expansion?
4. Explain how an understanding of interrelationship among the macroeconomic issues will stand us in good stead as regards envisioning and readying ourselves for future economic growth.

Addendum of Exhibits

Exhibit 1: Descriptive Statistics of all Selected Variables -

	GDP	Export	Import	Total Trade	Trade Openness	Inflation Rate	Exchange Rate	FDI	FIIs	Sensex	GOV. Expen	Interest Rate
Mean	3019625.	408818.0	597478.5	1006297.	27.23003	7.332685	41.71090	12917.51	31423.85	7870.279	483984.9	9.890000
Median	2234594.	232077.5	271203.0	503280.5	22.92690	6.767125	44.60250	5553.654	9348.000	4488.970	379747.5	9.250000
Maximum	8276665.	1465959.	2345463.	3811422.	46.05021	13.23084	48.39530	47138.73	146438.0	20509.09	1288763.	12.00000
Minimum	692078.0	53688.00	63375.00	117063.0	16.91471	3.684807	30.64880	532.0000	-45811	2615.370	125927.0	8.000000
Std. Dev.	2203916.	395964.0	642665.0	1038080.	9.249802	3.024264	6.138186	14220.52	48489.48	6175.723	345503.9	1.904261
Skewness	1.042895	1.314647	1.351790	1.337285	0.628776	0.320417	-0.735163	1.079093	1.196265	1.028136	1.085465	0.138609
Kurtosis	3.033420	3.808951	3.872329	3.845190	1.957144	1.882345	2.012632	2.861733	3.866722	2.544179	3.054607	1.134242
Jarque-Bera	3.626362	6.306324	6.725251	6.556393	2.224155	1.383184	2.613960	3.897406	5.396172	3.696692	3.929933	2.964918
Probability	0.163134	0.042717	0.034644	0.037696	0.328875	0.500778	0.270636	0.142459	0.067334	0.157497	0.140161	0.227079
Observations	20	20	20	20	20	20	20	20	20	20	20	20

Exhibit 2: Common Line Graph for Twelve Variables -

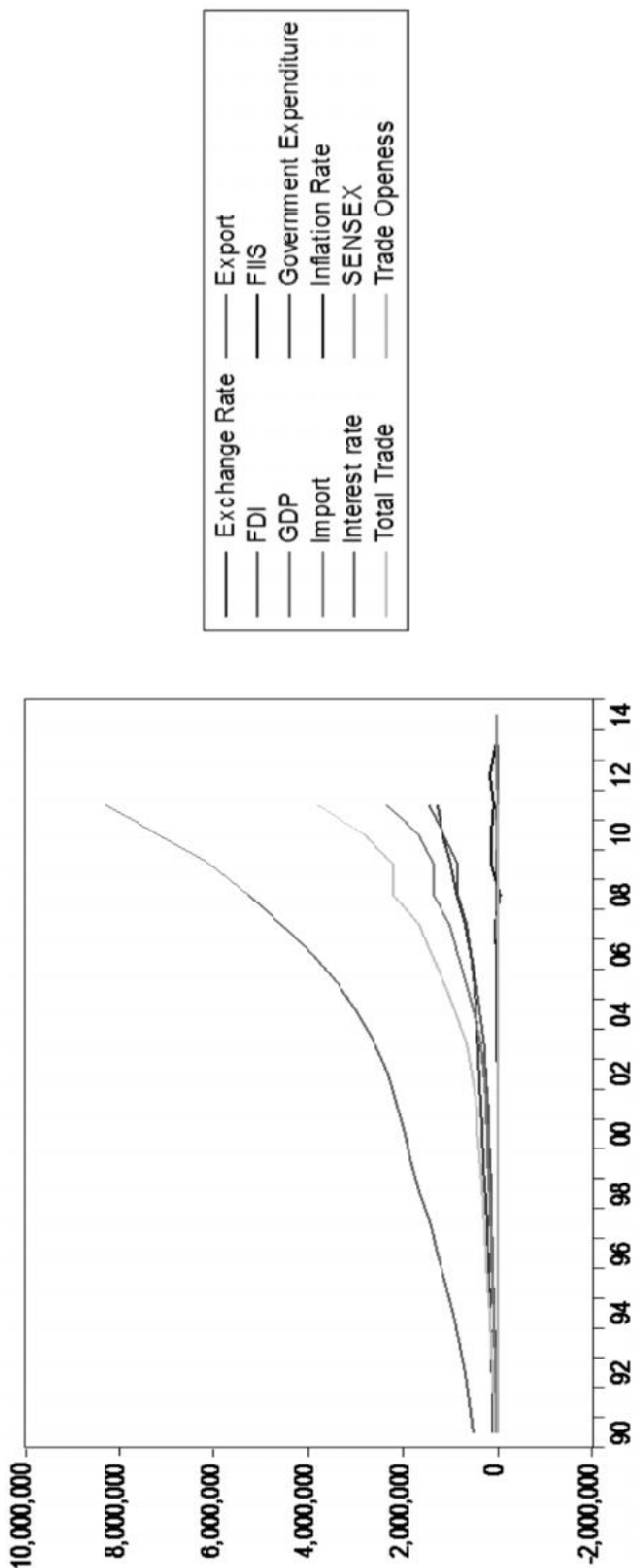


Exhibit 3: Performance of Selected Macroeconomic Variables -

Year	GDP	Exchange rate	Export	Import	Total Trade	Trade openness	Inflation	Govt. Exp	FDI In USD	Sensex	FII's	Interest rate
1990-91	524268	17.94	32553	43198	75751	14.45	13.87	104973	75	1908.85	13	12
1991-92	603451	24.47	44041	47851	91892	15.23	11.79	112731	252	2615.37	5127	12
1992-93	692078	30.64	53688	63375	117063	16.91	6.36	125927	532	3346.06	4796	12
1993-94	805881	31.36	69751	73301	143052	17.73	10.21	145788	974	3926.9	6942	12
1994-95	942302	31.39	82674	89971	172645	18.32	10.22	166998	2151	3110.49	8575	12
1995-96	1105102	33.44	106353	122678	229031	20.72	8.98	185233	2525	3085.2	5958	12
1996-97	1288706	35.49	118817	138920	257737	20	7.96	211260	3619	3658.98	-1584	12
1997-98	1434408	37.16	130100	154176	284276	19.82	13.23	224866	2633	3055.41	10122	12
1998-99	1653771	42.07	139752	178332	318084	19.23	4.67	263755	2168	5005.82	9933	12
1999-00	1831842	43.33	159561	215236	374797	20.46	4.01	307509	3587.99	3972.12	8763	12
2000-01	1969249	45.68	203571	230873	434444	22.06	3.68	328265	5477.64	3262.33	2689	11
2001-02	2147677	47.69	209018	245200	454218	21.15	4.39	360616	5629.67	3377.28	45765	9.5
2002-03	2321510	48.39	255137	297206	552343	23.79	3.81	398889	4321.08	5838.96	45881	9
2003-04	2601508	45.95	293367	359108	652475	25.08	3.77	426132	5777.81	6602.69	41467	8
2004-05	2949089	44.93	375340	501065	876405	29.72	4.25	463831	7621.77	9397.93	30840	8
2005-06	3364387	44.27	456418	660409	1116827	33.2	6.15	501083	20327.76	13786.91	66179	8
2006-07	3920042	45.28	571779	840506	1412285	36.03	6.37	570185	25349.79	20286.99	-45811	8
2007-08	4561574	40.241	655864	1012312	1668176	36.57	8.35	688909	47138.73	9647.31	142658	8
2008-09	5270644	45.91	840755	1374436	2215191	42.03	10.88	864530	35657.25	17464.81	146438	8
2009-10	6070903	47.42	845534	1363736	2209270	36.39	11.99	992442	21125.45	20509.09	93726	8
2010-11	7185159	45.57	1142922	1683467	2826389	39.34	8.86	1164728	36190.4	15454.92	168367	8
2011-12	8227665	47.92	1465959	2345463	3811422	46.05	9.31	1288763	25542.84	19426.71	51649	8.3

(Source: All respective authentic disclosure)

Exhibit 4: Pair wise Granger Casualty -

Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
EXPORT does not Granger Cause EXCHANGE RATE	20	0.23238	0.7954
<i>EXCHANGE RATE does not Granger Cause EXPORT</i>		3.75447	0.0476
FDI does not Granger Cause EXCHANGE RATE	20	1.36943	0.2843
EXCHANGE RATE does not Granger Cause FDI		0.88286	0.4340
FIIS does not Granger Cause EXCHANGE RATE	20	0.39265	0.6830
<i>EXCHANGE RATE does not Granger Cause FIIS</i>		6.81773	0.0094
GDP does not Granger Cause EXCHANGE RATE	20	0.72441	0.5008
EXCHANGE RATE does not Granger Cause GDP		2.96814	0.0820
GOVERNMENT EXPENDITURE does not Granger Cause EXCHANGE RATE	20	0.79477	0.4698
EXCHANGE RATE does not Granger Cause GOVERNMENT EXPENDITURE		0.56151	0.5819
IMPORT does not Granger Cause EXCHANGE RATE	20	0.27941	0.7601
<i>EXCHANGE RATE does not Granger Cause IMPORT</i>		6.44818	0.0095
INFLATION RATE does not Granger Cause EXCHANGE RATE	20	0.35497	0.7069
EXCHANGE RATE does not Granger Cause INFLATION RATE		0.36739	0.6986
INTEREST RATE does not Granger Cause EXCHANGE RATE	20	0.75484	0.4883
<i>EXCHANGE RATE does not Granger Cause INTEREST RATE</i>		4.20723	0.0371
SENSEX does not Granger Cause EXCHANGE RATE	20	1.18900	0.3335
EXCHANGE RATE does not Granger Cause SENSEX		3.46459	0.0599
TOTALTRADE does not Granger Cause EXCHANGE RATE	20	0.26765	0.7688
<i>EXCHANGE RATE does not Granger Cause TOTALTRADE</i>		5.98529	0.0123
TRADEOPENESS does not Granger Cause EXCHANGE RATE	20	0.04552	0.9556
<i>EXCHANGE RATE does not Granger Cause TRADE OPENESS</i>		7.18639	0.0065
FDI does not Granger Cause EXPORT	20	40.6359	9.E-07
EXPORT does not Granger Cause FDI		2.27591	0.1370
FIIS does not Granger Cause EXPORT	20	97.3497	2.E-08
<i>EXPORT does not Granger Cause FIIS</i>		10.5111	0.0019
<i>GDP does not Granger Cause EXPORT</i>	20	5.85295	0.0132
<i>EXPORT does not Granger Cause GDP</i>		13.5336	0.0004
GOVERNMENTEXPENDITURE does not Granger Cause EXPORT	20	2.42337	0.1225
EXPORT does not Granger Cause GOVERNMENT EXPENDITURE		24.8759	2.E-05
<i>IMPORT does not Granger Cause EXPORT</i>	20	9.36982	0.0023
<i>EXPORT does not Granger Cause IMPORT</i>		9.08171	0.0026
INFLATION RATE does not Granger Cause EXPORT	20	0.57986	0.5720
EXPORT does not Granger Cause INFLATION RATE		0.87568	0.4368
INTEREST RATE does not Granger Cause EXPORT	20	0.08828	0.9160

EXPORT does not Granger Cause INTEREST RATE		0.00107	0.9989
SENSEX does not Granger Cause EXPORT	20	23.0200	4.E-05
<i>EXPORT does not Granger Cause SENSEX</i>		3.77132	0.0490
<i>TOTALTRADE does not Granger Cause EXPORT</i>	20	9.36982	0.0023
<i>EXPORT does not Granger Cause TOTAL TRADE</i>		8.44787	0.0035
TRADE OPENESS does not Granger Cause EXPORT	20	3.67996	0.0501
EXPORT does not Granger Cause TRADE OPENESS		0.90505	0.4255
FIIS does not Granger Cause FDI	20	1.72405	0.2167
FDI does not Granger Cause FIIS		50.7447	7.E-07
GDP does not Granger Cause FDI	20	0.74670	0.4907
FDI does not Granger Cause GDP		1.50483	0.2537
<i>GOVERNMENTEXPENDITURE does not Granger Cause FDI</i>	20	7.24057	0.0063
<i>FDI does not Granger Cause GOVERNMENT EXPENDITURE</i>		12.5810	0.0006
IMPORT does not Granger Cause FDI	20	1.11930	0.3523
FDI does not Granger Cause IMPORT		77.6770	1.E-08
INFLATION RATE does not Granger Cause FDI	20	0.44383	0.6497
FDI does not Granger Cause INFLATION RATE		1.87438	0.1877
<i>INTERESTRATE does not Granger Cause FDI</i>	20	4.47021	0.0315
FDI does not Granger Cause INTEREST RATE		0.02505	0.9753
<i>SENSEX does not Granger Cause FDI</i>	20	5.58719	0.0165
<i>FDI does not Granger Cause SENSEX</i>		3.74914	0.0497
TOTAL TRADE does not Granger Cause FDI	20	1.51962	0.2506
FDI does not Granger Cause TOTAL TRADE		81.5039	9.E-09
<i>TRADE OPENESS does not Granger Cause FDI</i>	20	6.88261	0.0076
<i>FDI does not Granger Cause TRADE OPENESS</i>		13.7178	0.0004
<i>GDP does not Granger Cause FIIS</i>	20	7.14174	0.0081
<i>FIIS does not Granger Cause GDP</i>		5.13721	0.0227
<i>GOVERNMENT EXPENDITURE does not Granger Cause FIIS</i>	20	10.9312	0.0016
FIIS does not Granger Cause GOVERNMENT EXPENDITURE		1.96282	0.1799
<i>IMPORT does not Granger Cause FIIS</i>	20	7.43945	0.0070
FIIS does not Granger Cause IMPORT		56.9362	4.E-07
INFLATIONRATE does not Granger Cause FIIS	20	0.41332	0.6698
FIIS does not Granger Cause INFLATION RATE		0.62480	0.5507
INTERESTRATE does not Granger Cause FIIS	20	1.80063	0.1991
FIIS does not Granger Cause INTEREST RATE		0.15974	0.8538
<i>SENSEX does not Granger Cause FIIS</i>	20	7.96443	0.0044
FIIS does not Granger Cause SENSEX		0.40697	0.6728
<i>TOTALTRADE does not Granger Cause FIIS</i>	20	7.40871	0.0071

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FIIS does not Granger Cause TOTAL TRADE		68.4766	1.E-07
<i>TRADEOPENESS does not Granger Cause FIIS</i>	20	3.85839	0.0484
<i>FIIS does not Granger Cause TRADE OPENESS</i>		12.4621	0.0009
GOVERNMENTEXPENDITURE does not Granger Cause GDP	20	0.48033	0.6278
<i>GDP does not Granger Cause GOVERNMENT EXPENDITURE</i>		6.26025	0.0106
<i>IMPORT does not Granger Cause GDP</i>	20	6.87822	0.0076
GDP does not Granger Cause IMPORT		18.5595	9.E-05
<i>INFLATIONRATE does not Granger Cause GDP</i>	20	4.22288	0.0351
<i>GDP does not Granger Cause INFLATION RATE</i>		3.40388	0.0604
INTERESTRATE does not Granger Cause GDP	20	2.42978	0.1242
<i>GDP does not Granger Cause INTEREST RATE</i>		9.35719	0.0026
SENSEX does not Granger Cause GDP	20	0.95901	0.4071
<i>GDP does not Granger Cause SENSEX</i>		2.30152	0.1367
<i>TOTALTRADE does not Granger Cause GDP</i>	20	9.06700	0.0026
<i>GDP does not Granger Cause TOTALTRADE</i>		13.2330	0.0005
<i>TRADEOPENESS does not Granger Cause GDP</i>	20	4.74573	0.0253
GDP does not Granger Cause TRADE OPENESS		1.75816	0.2061
<i>IMPORT does not Granger Cause GOVERNMENT EXPENDITURE</i>	20	7.07612	0.0068
GOVERNMENTEXPENDITURE does not Granger Cause IMPORT		1.78566	0.2015
INFLATIONRATE does not Granger Cause GOVERNMENT EXPENDITURE	20	0.75193	0.4884
GOVERNMENTEXPENDITURE does not Granger Cause INFLATION RATE		2.53386	0.1127
INTERESTRATE does not Granger Cause GOVERNMENT EXPENDITURE	20	0.96142	0.4062
GOVERNMENTEXPENDITURE does not Granger Cause INTEREST RATE		0.04471	0.9564
<i>SENSEX does not Granger Cause GOVERNMENT EXPENDITURE</i>	20	8.09179	0.0046
GOVERNMENTEXPENDITURE does not Granger Cause SENSEX		1.78651	0.2037
<i>TOTALTRADE does not Granger Cause GOVERNMENT EXPENDITURE</i>	20	11.1712	0.0011
GOVERNMENTEXPENDITURE does not Granger Cause TOTAL TRADE		2.12470	0.1540
TRADEOPENESS does not Granger Cause GOVERNMENT EXPENDITURE	20	20.7616	5.E-05
GOVERNMENTEXPENDITURE does not Granger Cause TRADE OPENESS		3.41190	0.0601
INFLATIONRATE does not Granger Cause IMPORT	20	0.53287	0.5976
IMPORT does not Granger Cause INFLATIONRATE		1.43516	0.2690
INTERESTRATE does not Granger Cause IMPORT	20	0.11018	0.8964
IMPORT does not Granger Cause INTEREST RATE		0.00621	0.9938
<i>SENSEX does not Granger Cause IMPORT</i>	20	9.85129	0.0021
<i>IMPORT does not Granger Cause SENSEX</i>		5.45462	0.0177
<i>TOTALTRADE does not Granger Cause IMPORT</i>	20	9.08171	0.0026
<i>IMPORT does not Granger Cause TOTAL TRADE</i>		8.44787	0.0035
TRADEOPENESS does not Granger Cause IMPORT	20	0.52591	0.6015

IMPORT does not Granger Cause TRADE OPENESS		0.31082	0.7375
INTERESTRATE does not Granger Cause INFLATION RATE	20	0.98014	0.3996
INFLATIONRATE does not Granger Cause INTEREST RATE		2.85840	0.0910
SENSEX does not Granger Cause INFLATION RATE	20	1.00117	0.3923
INFLATIONRATE does not Granger Cause SENSEX		0.04599	0.9552
TOTALTRADE does not Granger Cause INFLATION RATE	20	1.20737	0.3264
INFLATIONRATE does not Granger Cause TOTAL TRADE		0.52528	0.6019
TRADEOPENESS does not Granger Cause INFLATION RATE	20	1.39470	0.2783
INFLATIONRATE does not Granger Cause TRADE OPENESS		0.97301	0.4006
SENSEX does not Granger Cause INTEREST RATE	20	0.05468	0.9470
<i>INTERESTRATE does not Granger Cause SENSEX</i>		4.85565	0.0225
TOTALTRADE does not Granger Cause INTEREST RATE	20	0.00374	0.9963
INTERESTRATE does not Granger Cause TOTAL TRADE		0.02269	0.9776
TRADEOPENESS does not Granger Cause INTEREST RATE	20	0.39009	0.6841
INTERESTRATE does not Granger Cause TRADE OPENESS		3.35211	0.0646
<i>TOTALTRADE does not Granger Cause SENSEX</i>	20	3.96350	0.0433
<i>SENSEX does not Granger Cause TOTAL TRADE</i>		16.5417	0.0002
<i>TRADEOPENESS does not Granger Cause SENSEX</i>	20	13.6682	0.0005
<i>SENSEX does not Granger Cause TRADE OPENESS</i>		11.2210	0.0012
TRADEOPENESS does not Granger Cause TOTAL TRADE	20	1.17674	0.3352
TOTALTRADE does not Granger Cause TRADE OPENESS		0.40719	0.6727

(All bold and italic values P value less than .05)