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STUDY OF GLOBAL INFLATION EFFECT ON GLOBAL ECONOMY

Author's **

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ABSTRACT:

In the modern era all the countries are inter-connected and inter-dependent with each other. There are so many economic variables which are influencing the global economy effectively. Among them inflation is one of the vital economic factor. In this study we had considered 164 months inflation of 181 countries for the span of 14 years i.e., from 2000-2014. Augmented dicky fuller test has been applied to convert the data into stationery. On the Johansen Co-integrated data, Granger Casualty test has been applied between world exports and imports to global inflation and BDI and found that global inflation and BDI influenced by the world exports and imports with the help of regression weight analysis. It has been found that global inflation is having the stronger influence on MSCI and BDI. This study is useful to the MNC's, World Bank, IMF, Exporters and importers of globe.

KEYWORDS: Inflation, Imports, Exports, BDI, MSCI, PPI, PMI, GDP, and Gold Prices.

INTRODUCTION:

The global economy is in a tough spot, caught between sharply slowing demand in many advance economies and rising inflation everywhere, notably in emerging an developing economies. The first panacea for mismanaged nation is inflation of the currency. It brings a temporary prosperity and also brings about permanent ruin. It is the refuge of political and economic opportunist. Policymakers face a difficult environment. They need to head off rising inflationary pressure while also being mindful of downside risks to growth. Governments, businesses, and households are subject to inflation's influence. Left unchecked, inflation can have worst impact on the world economy. In many countries the driving force behind higher inflation is higher food and fuel prices. However, the consensus view is that a long sustained period of inflation is caused by money supply growing faster than the rate of economic growth. It is measured as an annual percentage increase. As inflation rises, every dollar you own buys a smaller percentage of a good or service. The value of a dollar does not stay constant when there is inflation. The value of a dollar is observed in terms of purchasing power, which is the real, tangible goods that money can buy. When inflation goes up, there is a decline in the purchasing power of money.

REVIEW OF LITERATURE

1. **Prasanna v Salian, Gopa Kumar:** This paper seeks to examine the relationship b/w inflation and GDP growth in India. Empirical evidence is obtained from the co-integration and error correction models using annual data collected from the RBI. The main objective was to examine whether a relationship exists b/w economic growth and inflation. In the present study the objective is to examine the impact of inflation for the period of 2000 to 2014. The study is carried at global level whereas the above study is done at micro level i.e.; it is confirmed to India.

2. **John H. Boyd, Ross Levine, Bruce D. Smith (2000):** The paper describes mechanisms whereby even predictable increase in the rate of inflation interferes with the ability of the financial sector to allocate resources effectively. The evidence indicates that there is a significant, and economically important, negative relationship b/w inflation and banking sector development and equity market activity for economics with inflation rates exceeding 15%, there is a discrete drop in financial sector performance. The present study aims to show the impact of inflation on various factors such as Baltic dry index, MSCI, Gold prices, PPI, PMI, Imports and Exports. Further, it also examines the effect of inflation rates on all the sectors of the economy.

3. **Kar, Das (2009):** The study focused only on statistical measures of core inflation, Das, analyzed both exclusion based measures, excluding food articles, and fuel group, individually and together and some statistical measures such as mean-SD, trimmed mean, median, reweighing, HP filter and structural VAR measures. Both these studies were based on the old WPI series with 1993-94 as base. The study considers the impact of inflation on commodities traded globally. It is based on CPI series with 2000 as the base. Daily and monthly data of economic factors like BDI, MSCI, Gold prices, PPI, PMI, Imports and Exports is collected for measurement.

4. **Rouissi Chiraz, Mohamed Frior:** This communication aims to show the impact of inflation on the purchasing power of the Tunisian consumer and see the new mode of governance after the revolution. After the war in Libya, the national economy has declined and the recession of the Dinar cause several problems at the national & international level. This challenge presents an opportunity to liberate the economy from bottlenecks that had disadvantaged development in this volatile economic environment and implement reforms in favor of public and private investors. The study being done now shows how inflation can worsen macro economic performance. It attempts to study the effect of inflation on economic growth & development of all 181 countries monthly data of inflation has been collected from the year 2000-14 for study purpose.

5. **Matteo Ciccarelli, Benoit Mojon:** This paper shows inflation in industrialized countries is largely a global phenomenon. First, inflation of 22 OECD countries has a common factor that accounts for nearly 70% of their variance. This co-movement is due not only to the trend components of inflation (up from 1960 to 1980 and down there after) but also to fluctuations at

business cycle frequencies. Second, there is a robust error correction mechanism that brings national inflation rates back to global inflation. This study attempts to show that inflation is a global phenomenon. It is based on the monthly inflation rates of all 196 countries research has been conducted at global level taking various economic factors into consideration.

6. **Jose De Gregorio:** The paper discusses the role of commodity price shocks (CPS) in monetary policy in the light of recent episodes of such shocks. This paper reports that food inflation, more than energy inflation, has relevant propagation effects on core inflation. This paper also discusses other factors that may explain different inflationary performance across countries. This research focuses on examining the effect of inflationary price on global economy. It studies how the various economic factors like Imports, Exports, BDI, MSCI, Gold prices, Producer price index (PPI), and Production manager index (PMI) are being effected by increase in the prices of the commodities.

7. **Icoz, O:** High inflation is a significant factor affecting tourism and the tourism sector in developing countries. International tourism is highly susceptible to changes internal (ex: prices) and external (ex: Global economic trends) to the industry. Inflation in tourist destination areas is also caused by land values, with tourism generating additional demand for land. The extent to which inflationary prices increase are compensated for local residents by economic benefits such as increased employment and income is uncertain. The main objective of this study is to investigate the effect of inflation on various economic factors over the period of 2000- 2013. It considers all the sectors of the economy, being effected through increase in the prices of the commodities.

NEED: Global economy behavior is changing rapidly in 21st century when it compared with in the past centuries among all the economic variables inflation plays pivotal role which can influence individual to countries in this modern Era, all the countries are inter connected and interdependent with each other. The focus of the analysis is to measure the 181 countries inflation impact on global economy. In the study macro level variables were considered which depends on all the countries so that how global inflation is effecting the global economy in pre and post recession period.

OBJECTIVE:

1. To know the relationship of inflation with PMI, MSCI, BDI, GDP.

2. To know the impact of inflation on MSCI and BDI.

3. To study the world exports and imports effect on inflation along with BDI.

4. To know PPI impact on inflation and PMI.

5. To know the impact of inflation on gold prices.

SCOPE: This analysis has been emphasized for the period of 2000- 13. BDI has been considered as the global economic indicator & MSCI has been used global equity indicator for the analysis. Production price index is also considered which is used for the calculation of inflation to measure the impact of production manager index with all the selected economic variables were averaged to early.

EMPERICAL STUDY:

PPI, PMI, BDI, GDP, INFLATION, GOLD PRICES, MSCI, WORLD IMPORTS & EXPORTS

RESEARCH METHODOLOGY: This analysis has been done on secondary data by using descriptive statistical tools.

1. **Correlation:** A correlational study is a research writing that attempts to relate an event to another events or sets of causality which precipitate the event.

Slabs: 0 -0.3 slightly correlated, 0.3-0.7 moderately correlated, 0.7-1 strongly correlated.

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$

2. **Regression**: A statistical measure that attempts to determine the strength of the relationship between one dependent variable and the series of other changing variable.

$$\boxed{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon}$$

3**. Johansen test:** This test is used to know whether data is co-integrated between variables. This test permits more than one co-integrating relationship so it is more generally applicable than the Engle-Granger test which is based on the Dickey–Fuller or the augmented test for unit roots in the residuals from a single co-integrating relationship.

4.**Granger casualty test:** The Granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another. The number of lags to be included is usually chosen using an information criterion, such as the Akaike information criterionor the Schwarz information criterion.

$$y_t = \beta_{1,0} + \sum_{i=1}^{p} \beta_{1,i} y_{t-i} + \sum_{j=1}^{p} \beta_{1,p+j} x_{t-i} + e_{1t}$$

$$x_t = \beta_{2,0} + \sum_{i=1}^{p} \beta_{2,i} y_{t-i} + \sum_{j=1}^{p} \beta_{2,p+j} x_{t-i} + e_{2t}$$

LIMITATIONS:

1. MSCI data has been collected from the year 2007 onwards.

2. Global GDP averaged values were considered annually in that averaged data few countries GDP figures were not considered due to un available data

3. Globally different countries are following different methods such as CPI, WPI, and PPI.

DATA ANALYSIS:

1. To know the relationship of inflation with PMI, MSCI, BDI, GDP.

		INFLATION	PMI	MSCI	BDI	GDP
INFLATION	Pearson Correlation	1	-.213	.327	-.080	-.277
	Sig. (2-tailed)		.465	.253	.786	.338
	N	14	14	14	14	14
PMI	Pearson Correlation	-.213	1	.052	-.016	.506
	Sig. (2-tailed)	.465		.861	.957	.065
	N	14	14	14	14	14
MSCI	Pearson Correlation	.327	.052	1	.062	-.295
	Sig. (2-tailed)	.253	.861		.834	.307
	N	14	14	14	14	14
BDI	Pearson Correlation	-.080	-.016	.062	1	.460
	Sig. (2-tailed)	.786	.957	.834		.098
	N	14	14	14	14	14
GDP	Pearson Correlation	-.277	.506	-.295	.460	1
	Sig. (2-tailed)	.338	.065	.307	.098	
	N	14	14	14	14	14

Interpretation: The above analysis of bi-variate correlation has been applied to inflation with all selected macro economic variables. The analysis results show that except MSCI rest of the variables were slightly negative correlated with inflation. The MSCI is slightly positively correlated with inflation.

2. To know the impact of inflation on MSCI and BDI.

Model Summary

Multiple R	.948
R Square	.899
Adjusted R Square	.880
Std. Error of the Estimate	553.933
Log-likelihood Function Value	-47.740

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.996E7	2	1.498E7	48.818	.000
Residual	3375260.521	11	306841.866		
Total	3.333E7	13			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	Std. Error	T	Sig.
(Constant)	78.724	3.941			19.977	.000
MSCI	.988	.108	.882	.097	9.126	.000
BDI	-.002	.001	-.256	.097	-2.645	.023

Interpretation: The above analysis regression weighted least square has been applied to measure the impact of global inflation on BDI and MSCI. The probability value is found to be significant which less than 0.5 is. The co-efficient of MSCI and BDI values were observed significantly during the study period.

3. To study the world exports and imports effect on inflation along with BDI.

ICR MODEL					
Data Trend:	None	None	Linear	Linear	Quadratic
Rank or	No Intercept	Intercept	Intercept	Intercept	Intercept
No. of CEs	No Trend	No Trend	No Trend	Trend	Trend
DEXPORTS INFLATION					
	LLR				
0	-106.2511	-106.251	-103.337	-103.337	-100.744
1	-97.751	-97.7425	-94.9807	-90.1876	-88.4977
2	-94.45516	-94.2169	-94.2169	-88.3496	-88.3496
DIMPORTS INFLATION					
	LLR				
0	-114.9874	-114.987	-106.398	-106.398	-105.726
1	-106.015	-105.781	-103.062	-98.1248	-97.7069
2	-105.3805	-102.783	-102.783	-97.2008	-97.2008
DEXPORTS DBDI					
	LLR				
0	-153.7351	-153.735	-150.629	-150.629	-145.958
1	-139.6782	-139.309	-138.756	-138.597	-135.12
2	-138.6181	-136.218	-136.218	-134.522	-134.522
DIMPORTS DBDI					
	LLR				
0	-166.1738	-166.174	-161.638	-161.638	-160.051
1	-162.0254	-161.035	-158.893	-152.958	-152.044
2	-161.6481	-158.418	-158.418	-150.215	-150.215

Interpretation: The above table depicts the Johansen cointegration between the world exports and imports with global inflation and BDI. The analysis shows that Log Likelihood Rank values were in decreasing trend in both the linear and quadratic model along with the alpha levels. Hence, data is observed cointegration between the world exports and imports to global inflation and economic indicator BDI.

GRANGER CAUSUALITY TEST				
		OBS	F-Statistic	Prob.
Null Hypothesis:	INFLATION does not Granger Cause DEXPORTS	12	0.1768	0.8416
	DEXPORTS does not Granger Cause INFLATION		4.55736	0.054
	INFLATION does not Granger Cause DIMPORTS	12	1.67037	0.2552
	DIMPORTS does not Granger Cause INFLATION		12.3223	0.0051
	DBDI does not Granger Cause DEXPORTS	12	17.1664	0.002
	DEXPORTS does not Granger Cause DBDI		1.06886	0.3935
	DBDI does not Granger Cause DIMPORTS	12	1.36830	0.3151
	DIMPORTS does not Granger Cause DBDI		1.04488	0.4008

Interpretation: The Granger Casuality test has been applied to measure the cause and effect on inflation and BDI with world exports and imports. The Null Hypothesis (Ho) accept as the probability value is found to be significant with global exports and imports to inflation and BDI during the analysis period and reject the alternative hypothesis(H1).

4: An analysis of PPI impact on inflation and PMI.

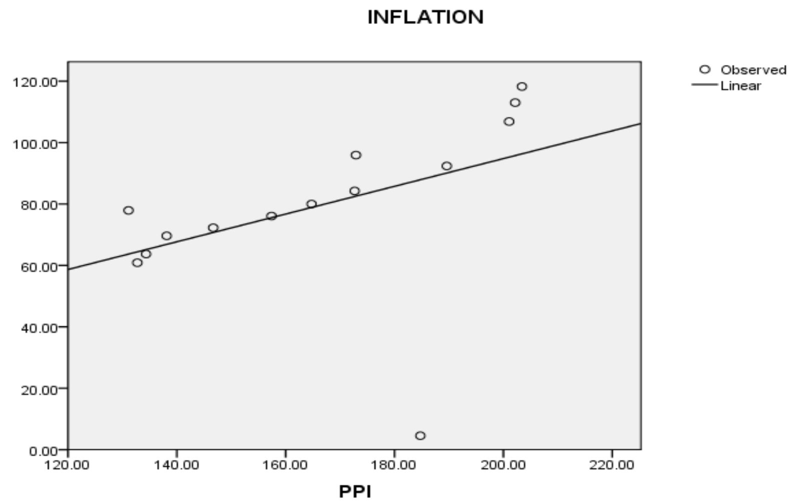
Model Summary and Parameter Estimates

Dependent Variable: INFLATION

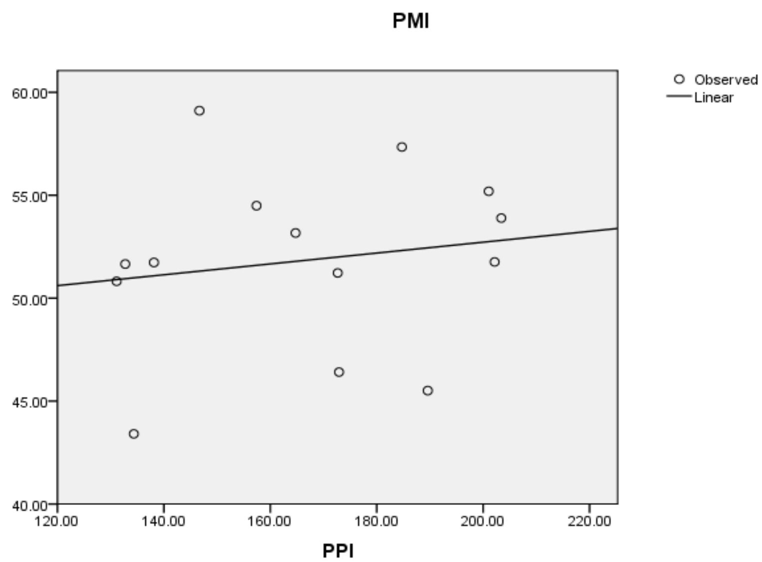
Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	.189	2.802	1	12	.120	4.496	.452

The independent variable is PPI.

Interpretation: The above analysis of linear trend model has been applied to measure the PPI impact on inflation and PMI. The probability value is found to be significant which indicates that global inflation and producer's manager index were influenced by producer's price index during the analysis period.



Interpretation: The above graph depicts that (inflation) observed values were above the linear trend line which indicates that the inflation were boost at higher level by the producer price index.



Interpretation: The above graph shows that PMI values were scattered above and below of the linear trend line but on upper side of the linear trend more values were observed than the below trend line which indicates that the PMI has also got influenced by the PPI.

5. To know the impact of inflation on gold prices.

DDGOLD INFLATION					
ICR MODEL					
Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept	Intercept	Intercept	Intercept	Intercept
No Trend	No Trend	No Trend	Trend	Trend	Trend
	LLR				
0	-110.2238	-110.224	-109.649	-109.649	-108.089
1	-109.4745	-105.905	-105.339	-105.33	-103.771
2	-108.9574	-105.338	-105.338	-103.72	-103.72

Interpretation: The above table depicts the Johansen cointegration between inflation and gold prices. The analysis shows that Log likelihood rank values were in decreasing trend in both the linear and quadratic model along with alpha level. Hence, data is observed cointegration between the inflation and gold prices.

INFLATION AND GOLD				
GRANGER CAUSUALITY TEST		OBS	F-Statistic	Prob.
Null Hypothesis:	INFLATION does not Granger Cause DDGOLD	10	0.73568	0.5247
	DDGOLD does not Granger Cause INFLATION		0.21397	0.8144

Interpretation: The Granger causality test has been applied between gold & inflation. The Null hypothesis of Granger has rejected and accepted the Alternative hypothesis which shows that gold is influenced by the inflation.

FINDINGS:

1. PMI, BDI and GDP were negatively correlated but msci is moving along with the global inflation during the study period.
2. Global inflation influenced the global economy during the study period. MSCI global equity indicator and BDI global future economic indicator both are effected by the inflation.
3. In this study it has been observed that global exports and imports caused the global inflation and BDI.
4. Producer's price index effected the global inflation and producer's manager index during the study period.

CONCLUSION:

I conclude the analysis off global inflation impact on global economy by considering few macro economic variables. This study had considered 14 years data i.e., 2000-2013. Global inflation data has been considered for 181 countries and measure the impact on global economy. This study observes that global equity index MSCI, BDI, PMI were influenced by the global inflation.

World exports and imports caused the inflation to some extent during the analysis period. Hence, further study is recommended to measure the effect o f global inflation on global economy by considering various asset classes along with the factors which influence economy along with the inflation.

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