STUDY OF ECONOMY IMPACT ON GOLD AND EQUITY

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ABSTRACT:
This paper has analyzed the world equity market and gold investments globally, these two asset classes will move based on global economy. Investor's fraternity across the globe wanted to participate with the moving asset class round the clock and 365 days. In this analysis BDI and MSCI has been considered to measure the global economy performance and with the select economic factors how these two asset classes are having the relationship with each other with the help of Weighted Least square Analysis to predict the future movement of these asset classes from the investors perception .this analysis is useful for the global investors like FII, pension funds, investment bankers and merchant bankers.

Keywords: BDI, Dollar index, Gold, Inflation, MSCI and W.GDP.

INTRODUCTION:

There is a tremendous improvement in the world of capital markets from the past few decades to till now. Investors are showing immense interest in the stock markets. Rational investors are crucially participating in the capital market investing in various financial instruments as well as commodities i.e. mainly on Gold. As of today equities and commodities have become most booming investments in the capital markets of the world but the gold has its own emergence as an investment alternative that's why it stands as 2nd best investment alternative in the capital market among the world. Investors can use gold as one of the investment alternative in their portfolio construction.

There has been a drastic change in the gold prices from the recession period to till now. As we know that the stock markets are meant to be the barometers of the economy. But the stock market volatilities are influencing countries economy. The performance of gold bullion is often compared to stocks. But fundamentally they are two different asset classes. Gold is regarded by some investors as a store of value (without growth) whereas stocks are regarded as a return on value (i.e. growth due to anticipated real price increase plus dividends). Stocks and bonds perform best in a stable political climate with strong property rights and little turmoil.

International gold prices have risen almost unabatedly in the last few years, though there was one large correction in 2008. From July 2011 the pace of increase in gold prices has, however, accelerated further and in the third quarter of 2011, gold prices rose much faster. The spurt in gold prices which occurred in 2011 took place in the background of worsening of financial and economic scenarios initially in the US, followed by the debt problems in the European Countries. As a result of these adverse global developments and "flight to quality", gold is emerging as a "safe" asset for investment purposes.

In this study the price of gold in bullions is often compared with different selected stock indices of the world such as DAX, SENSEX, FTSE and SHANGHAI stock exchange. We found that the international gold prices and world equity were moving in the same direction but the Chinese index has been trading differently with the other countries during the analysis, Investors across the globe had selected gold as a hedging tool against negative economic factors and investment also routed to Chinese market in the year 2013, Chinese market and international gold prices has started in correction mode And the macro economic factors crude oil, inflation, exchange rates has greater impact on gold while comparing to the other economic variables. So the investors can use gold as hedging tool against inflation.

Gold's performance in this analysis period i.e.1st April 2008 to 31st March 2013 has sparked something of a reappraisal of its characteristics as an asset and led some to revisit its proper place in investor's portfolios. As a store of value which is relatively immune to inflation, financial crises and credit default, gold has been used for centuries to protect individual's wealth. These special properties are borne out in the recent performance of gold, and investors may continue to value them given the significant uncertainties still facing the global economy.

OBJECTIVES:

1. To find the relationship between economy (BDI) to MSCI and economy (BDI) to GOLD.
2. To find the inflation effect on GOLD and EQUITY.
3. To find the weight estimation of CRUDE OIL with GOLD and MSCI.
4. To find the relationship and their influence between the selected economic factors with GOLD and MSCI.
5. To know how gold investments are influencing the BSE (Bombay Stock Exchange), SSE (Shanghai Stock Exchange), FTSE and DAX.
6. To find the performance measure between BDI and MSCI.

SCOPE:

The analysis period is confined for 5 years i.e. from 2008 to 2013. To take information decisions from the investor's perspective to invest in gold or in equity various select economic factors and equity indices have been considered.

Empirical study:

BDI, DAX, DOW JONES, FTSE, GOLD, GDP, INFLATION, IIP, MSCI, PIMCO, PMI, SENSEX.

LITERATURE REVIEW:

Kannan and R.Dhal The empirical findings suggest that India's gold demand during the period 1980-2005 is significantly influenced by real income and a set of variables pertaining to monetary, fiscal and financial sector policies such as interest rate, exchange rate, personal income tax, government spending to ease economic and social uncertainty and wealth (asset price), besides the relative price of gold.

Mandeep Mahendru the paper analyzes long term relationship between BSE and macroeconomic variables change in exchange rate, foreign exchange reserve, inflation rate and

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gold price. The period of the study is January 2008-09. Results reveal that there is high correlation between the empirical results reveal that exchange rate and gold prices highly effect the stock prices on the other hand the influence of foreign exchange reserves and Inflation on the stock price is up to limited extend only.

Dirk G.Baur and Gunter Loffler In this paper, we propose novel predictor variables for forecasting stock market returns. We investigate the predictive power of the demand for gold coins and bars as a proxy for the risk premium. Our analysis shows that the demand for gold is positively correlated with future stock returns and enhances the predictive power of the dividend yield and other variables.

Hina Shaazadi Karachi Stock Exchange (KSE) as a major stock exchange of Pakistan is watching worst sell-off positions in these circumstances. Investors are showing less interest in the stock markets and investing in precious metals like gold due to increasing trend in gold prices. This behavior is not only affecting stock exchanges of developed countries but also effecting stock exchanges of developing country like Pakistan. the impact of gold prices on KSE by using data of five years from 2006 to 2010.

DR.Amalendu Bhunia the study investigates the co-integration relationships among crude oil price, domestic gold price and selected financial variables (exchange rates and stock price indices) in India. Increasing crude oil prices will increase the production costs which will affect cash flow and will decrease stock prices. Investors are showing fewer concerns in the stock markets and investing in yellow metals due to increasing trend in gold prices on account of no fear and no future loss

Hamed Sadri and Ehsan TayebiSani analyzing the impact factors for absorbing the more deposit and liquidity of private sector for financing long run investment and aiding to growth of economy is useful for the country. They suggest that (1) crude oil prices have a significant positive effect on stock exchange index of studied countries meanwhile this effect is negative for gold price.(2) The volatility of crude oil prices has scant positive effect on stock markets of selected country meanwhile the positive effect of gold is more noticeable.

Shaun K.Roache and Marco Rossi the paper uses an event study methodology to investigate which and how macroeconomic announcements affect commodity prices. Results show that gold is unique among commodities, with prices reacting to specific scheduled announcements in the United States and the Euro area (such as indicators of activity or interest rate decisions) in a manner consistent with gold's traditional role as a safe-haven and store of value.

Sayyed Mahdi Ziaedi the gold market has seen a steady price rise in recent years. The factors affecting gold prices include the fundamentals of aesthetic and precautionary demand for gold. The effect that gold price has on domestic credit is not pronounced. The significant relationship between gold price, equity and bond market implies that the recent worldwide financial crisis and instability such as recession and deficit problems in the Euro zone and the US have increased the precautionary demand for gold in Southeast Asian countries, at least over the last five years.

Robbani and Eric.N Gold is considered to be a hedge against inflation, recession, and downturn in the general equity markets. We study the behavior of gold returns in relation to growth rate in gross domestic product (GDP), equity index returns, gold stock index returns and inflation rates.

Gold stock index returns are significantly positively related with the gold returns. The results suggest that during the decline in the equity markets, gold is used as a safe haven.

Graham Smith this study provides empirical evidence on the relationship between the price of gold and stock price indices for the United States over the period (January 1991 to October 2001). Four gold prices and six stock price indices are used. The short-run correlation between returns on gold and returns on US stock price indices is small and negative and for some series and time periods insignificantly different from zero.

RESEARCH METHODOLOGY:

Correlation

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

Regression Formula:

Regression Equation(y) = a + bx
Slope (b) = (NΣXY - (ΣX) (ΣY)) / (NΣX2 - (ΣX) 2)
Intercept (a) = (ΣY - b (ΣX)) / N

DATA ANALYSIS:

CORRELATION AND RETURNS:

Correlation= BDI, GOLD, MSCI
Returns= BDI, GOLD, MSCI

BDI AVERAGE	**GOLD AVERAGE**	**MSCI AVERAGE**
1077.67	$868.08	23.81
1026.217	$1,022.73	28.04
1279.956	$1,294.08	34.22
1433.766	$1,649.13	34.53
898.424	$1,654.10	32.59
CORRELATION		
BDI-GOLD	BDI-MSCI	
0.245675117	0.482460525	
RETURNS		
BDI	GOLD	MSCI
-16.63273544	90.55	36.87526249

Interpretation:

The above analysis had been done to measure the relationship between economy and to asset classes i.e. gold and equity (MSCI). The analysis period it has been observed that economy is moving upwards, along with the economy these two asset classes were moving in equal direction, correlation has found to be positive moderately correlated and the returns of these row asset classes were also positive.

Hence, the investors were in ambiguous during this period and investing in these two asset classes which were performing accordingly to the investors' expectations.

Weighted least square analysis - Inflation with gold and MSCI

Power summary

Log likelihood values

Power

-2	-7.496[a]
-1.5	-7.523
-1	-7.554
-0.5	-7.590
0	-7.629
0.5	-7.672
1	-7.717
1.5	-7.765
2	-7.814

a. **The corresponding power is selected for further analysis because it maximizes the log-likelihood function.**
b. **Dependent variable : inflation**
   Source variable : crude oil

Best Model Statistics

Model description

Dependent Variable		Inflation
Independent Variables	1	Gold
	2	MSCI
Weight	Source	crude oil
	Power Value	-2.000

Model: MOD_3.

Model summary

Multiple R	0.400
R Square	0.160
Adjusted R Square	-0.679
Std. Error of the Estimate	125.053
Log-likelihood Function Value	-7.496

ANOVA

	Sum of squares	Df	Mean squares	F	Sig.
Regression	5973.925	2	2986.962	0.191	0.840
Residual	31276.274	2	15638.137		
Total	37250.199	4			

Co-efficient

	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	Std. Error	T	Std. Error
(Constant)	3.307	5.772			0.573	0.624
Gold	0.002	0.004	0.787	1.309	0.602	0.609
MSCI	-0.143	0.315	-0.592	1.309	-0.453	0.695

FREQUENCIES VARIABLES=Inflation Gold MSCI

INTERPRETATION:

The above analysis of weighted least square method has been applied to GOLD and MSCI with INFLATION. R square is slightly correlated which is less than the slab value i.e. 60% but the T-statistic value of GOLD has fallen in significance region but the MSCI has fallen in non significance region

Hence, the inflation has influence the GOLD to move up side but MSCI is not influenced during the analysis period and it is very difficult to predict the future movement based on inflation.

Weighted Least square Analysis
Crude oil with Gold and MSCI

Log likelihood values [b]

Power	
-2	-16.225[a]
-1.5	-16.316
-1	-16.409
-0.5	-16.504
0	-16.600
0.5	-16.696
1	-16.791
1.5	-16.886
2	-16.979

a. **The corresponding power is selected for further analysis because it maximizes the log-likelihood function.**
b. **Dependent variable : Crude oil**

Source variable : Crude oil

Best Model Statistics
Model Description

Dependent Variable	1	Crude oil
Independent Variables	2	Gold, MSCI
Weight	Source	Crude
	Power Value	-2.000

Model: MOD_1.

Model Summary

Multiple R	0.776
R Square	0.603
Adjusted R Square	0.205
Std. Error of the Estimate	716.555
Log-likelihood Function Value	-16.225

ANOVA

Particulars	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1556749.932	2	778374.966	1.516	.397
Residual	1026901.253	2	513450.627		
Total	2583651.186	4			

Co-efficient

	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	Std. Error	t	Sig.
(Constant)	84.143	33.073			2.544	0.126
Gold	.033	0.023	1.267	0.901	1.407	0.295
MSCI	-1.291	1.806	-.644	0.901	-.715	0.549

Case Processing summary

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
5	83.3%	1	16.7%	6	100.0%

Proximity matrix

	Euclidean Distance				
	1	2	3	4	5
1	.000	3.298E3	6.376E3	5.531E3	6.795E3
2	3.298E3	.000	3.565E3	3.417E3	4.914E3
3	6.376E3	3.565E3	.000	1.631E3	2.382E3
4	5.531E3	3.417E3	1.631E3	.000	1.509E3

5	6.795E3	4.914E3	2.382E3	1.509E3	.000

This is a dissimilarity matrix

INTERPRETATION:

The above analysis of weighted least square method has been applied to GOLD and MSCI with CRUDE OIL. The R square is strongly correlated which is above the slab value i.e. 60% but the T-statistic value of GOLD has fallen in significance region but the MSCI has fallen in non- significance region.

Hence, the CRUDE OIL has influence the GOLD to move up side but MSCI is not influenced during the analysis period and it is very difficult to predict the future movement based on CCRUDE OIL.

CORRELATIONS

VARIABLES=**GOLD MSCI PMI CURRENCY BDI**

variables	Description	Gold	MSCI	pmi	Currency	Bdi
Gold	Pearson Correlation	1	0.864	0.572	-0.900*	0.246
	Sig. (2-tailed)		0.059	0.313	0.037	0.690
	N	5	5	5	5	5
MSCI	Pearson Correlation	0.864	1	0.889*	-0.823	0.482
	Sig. (2-tailed)	0.059		0.044	0.087	0.411
	N	5	5	5	5	5
Pmi	Pearson Correlation	0.572	0.889*	1	-0.499	0.411
	Sig. (2-tailed)	0.313	0.044		0.393	0.491
	N	5	5	5	5	5
Currency	Pearson Correlation	-0.900*	-0.823	-0.499	1	-0.610
	Sig. (2-tailed)	0.037	0.087	0.393		0.275
	N	5	5	5	5	5
Bdi	Pearson Correlation	0.246	0.482	0.411	-0.610	1
	Sig. (2-tailed)	0.690	0.411	0.491	0.275	
	N	5	5	5	5	5

*. Correlation is significant at the 0.05 level (2-tailed).

Interpretation:

In the above analysis, correlation has been applied between different variables. Here the variables,GOLD-MSCI,GOLD-CURRENCY,MSCI-GOLD,MSCI-PMI,MSCICURRENCY,PMI-MSCI,CURRENCY-GOLD,CURRENCY-MSCI are strongly correlated, in this few are negatively strongly correlated.
The variables GOLD-PMI,MSCI-BDI,PMI-GOLD,PMI-CURRENCY,PMI-BDI,CURRENCY-BDI,BDI-MSCI,BDI-PMI,BDI-CURRENCY are moderately correlated, in this few are negatively moderately correlated.
The rest are slightly correlated in which few are negatively slightly correlated.

IMPACT OF GOLD ON DAX, SENSEX, FTSE AND SHANGHAI

VARIABLES	CORRELATION	SKEWNESS	KURTOSIS
GOLD – DAX	0.897513475	0.086536861	-2.290244827
GOLD-SENSEX	0.809701377	0.135043362	-2.336602306
GOLD-FTSE	0.825890899	0.364455148	-1.866918144
GOLD - SHANGHAI	0.48120962	-0.110729797	-1.52301712

Interpretation:

Correlation:
the above table shows that the correlations between all the variables are very strong except with china index i.e. shanghai.

Skewness:

DAX, SENSEX and FTSE are found to be rightly skewed with gold during the analysis period which shows that equity market were influenced with gold movements. China is left skewed with gold which shows that Chinese market has behaved in different manner when compared with other countries.

KURTOSIS:

All the variables with gold are found to platy cut, where all the values are below the standard value i.e.3

Hence, the data is not normally distributed during the analysis period.

VARIABLES	T-TEST	T-values	Significant/non significant
GOLD – DAX	7.96606E-07	2.776	Not significant
GOLD-SENSEX	1.07069E-06	2.776	Significant
GOLD-FTSE	4.16823E-05	2.776	Not significant

GOLD - SHANGHAI	0.000240031	2.776	Significant

Interpretation:

The above table shows the T-test between the variables. Here it is found that the variables GOLD-DAX and GOLD-FTSE are not significant so the null hypothesis is rejected and the alternate hypothesis is accepted so the economy is not influenced and the variables GOLD-SENSEX and GOLD-SHANGHAI are significant so the null hypothesis is accepted and the alternate hypothesis is rejected so the economy is influenced.

MAR RATIO

YEARS		**MSCI AVERAGE**		**BDI AVERAGE**
2008-09		23.819		1077.670613
2009-10		28.043		1026.217308
2010-11		34.227		1279.956917
2011-12		34.532		1433.766798
2012-13		32.598		898.4247104
Total		153.219		5716.036346
Total CAGR = total avg/no. of yrs		**30.6438**		**1143.2072692**
BDI		**Msci**		10% of CAGR for MSCI = 3.06438
Max	**Min**	**Max**	**Min**	10% of CAGR for BDI = 114.3072692
2173	647	40.08	11.86	
1526		28.22		
MAX DRAW DOWN MSCI&BDI		25.15562		1411.67927308
MAR RATIO (MSCI)		**1.21816914073**		
MAR RATIO (BDI)		**0.8098208219**		

Interpretation:

Performance measure tool MAR ratio has been applied for MSCI and BDI with the help of above analysis it has been observed that MSCI performance is better than the BDI.
Hence, investors can take the help of MSCI instead of BDI to know the global economy so that they can take inform decision to invest in gold or equity.

FINDINGS:

- It has been found that the gold prices and world equity were moving in the same direction during the analysis period.

- In macro economic factors inflation influence has been found more on gold when compared with other variables.
- Investment in gold and equity given high returns in Germany and India after recession period.
- Global equity indicator MSCI performance is found to be stronger when compared with global economic indicator BDI.
- China market had behaved in a different direction when compared with the other countries like U.K, India and Germany.
- Short selling has been observed from the long term investment point of view in gold more when it compared with equity asset class.

CONCLUSION:

- This analysis has been emphasized with select global economic factors and equity indices of few inflation has been found as one of the basic economic variable which is most influential on gold asset class after the world recession period BDI has recovered from its bottom and trading at higher levels and the gold value is also stable i.e. the gold value is not depreciating from its top level.
- This paper analyzed few major countries indices movement with gold. It has been observed that the Chinese market has been trading differently with the other countries. Hence, investors across the globe had selected gold as a hedging tool against negative economic factors and investment also routed to Chinese market in the year 2013, Chinese market and international gold prices has started in correction mode.

- I conclude this analysis by suggesting gold is still one of the best hedging tool against inflation and other negative factors. Hence, there is a further scope to do research to take inform decisions to invest in gold and equity asset classes for the FII's and investment bankers across the globe.

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