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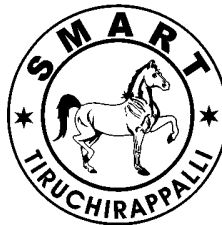
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RECENT GLOBAL ECONOMIC TRENDS - OIL PRICES AND ITS BLENDING WITH DOLLAR VALUE

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The study investigates the effect of crude oil prices on US Dollar value and it is found that they have a high negative correlation. Although oil price in Dollar and Euro show a high positive correlation, analyzing year-wise standard deviation of oil prices shows that Euro is more stable than US Dollar in oil trade. Oil prices have a significant positive influence on the exchange rates of currencies other than dollar. As far as Indian Rupee is concerned, there is a significant relationship between crude oil prices in Dollars and Rupee value. However, the level of influence is low compared to that of Euro, British Pound and Swiss Franc.

Introduction

Today's global economy is marked by recession, uncertainty and rising inflation, apart from growing unemployment. The consequences are reflected by volatility in stock markets and currency markets, worldwide. Economic slowdown, which began in United States (US), has spread all over the world. Crude Oil Prices and US Dollar Value are making news in recent days. Oil prices are falling since July 2008 while the Dollar is simultaneously strengthening against the Euro and other global currencies. In spite of the fact that American economy is facing a down fall, US Dollar is appreciating and the recent drop in oil prices is cited to be one of the reasons for the same. Although there is a continuing policy discussions among oil traders on whether Euro should replace Dollar in oil trade, Dollar happens to dominate the field. Oil Price and Dollar Value move in opposite directions and a measure of how much these two prices move in tandem, will help us to understand the global economy better.

Statement of the Problem

Rapport between US Dollar and Crude Oil

Oil is a dollar-denominated commodity and hence US Dollar Value (against other

currencies) has a strong influence on Oil Price and vice versa. For example, in case dollar depreciates, keeping relative oil price in equilibrium, the dollar price of oil should go up. This is what was happening since 2002 to June 2008, when dollar was losing against other currencies. To be more specific, oil producers sell their products in dollars and use these dollars to purchase in international markets. Dollar price of oil was increased to improve their purchasing power. Hence, considering the recent fall in oil prices as a signal for stabilization of the market, the dollar should appreciate against other currencies and that is what is happening now. Thus, the recent fall in oil prices may be taken as a signal for stabilization of the market. This paper attempts to measure the correlation between oil price and dollar value to explain the recent trends.

Will Euro replace US Dollar in Oil Trade?

Ever since the days of Second World War, US Dollar is the undisputed global reserve currency. To strengthen the trust of the world in their currency, US bullied Organization of the Petroleum Exporting Countries (OPEC), to sell oil in dollars only, creating a demand for the currency in the world market. When Euro was established in 2000s, Iraq announced that they will sell oil in Euro only and US invaded

the country for obvious reasons. Since 2004, Iran, the world's fourth largest oil producer and OPEC's second largest oil exporter, has slowly started to shift from Dollar to Euro and Yen for its crude oil trading, despite slapping of US sanctions (for seeking nuclear weapons!). Many countries feel that it is high time that they shift from dollar to a more stable currency like Euro. Although one has to wait and watch the developments in the days to come, Euro can not be neglected when a study, especially the one that is related to oil prices, is undertaken.

iii) Effect on emerging economies

Dollar strength has a cascade effect on emerging economies like India, China etc. Dollar depreciation, associated with the increase in oil prices, till the first half of 2008, was linked to losses incurred, inflationary pressures and economic recession faced by many countries. Dollar has started appreciating, in association with the fall in crude oil prices, during the past few months against almost all popular currencies, with an exception of Japanese Yen. Hence, a study on the effect of oil prices on exchange rates of other currencies becomes inevitable.

Review of Literature

Michael Enrich & Asokan Anandarajan (2008), in their study, felt that the oil-price hikes hurt the US business and proposed that US based managers needed to compensate for the falling value of the dollar while planning their business strategies and offered some vital tools and strategies. According to Oystein Noreng (2008), as the crude oil price is not perfectly competitive, the choice of currency is relevant for real oil prices in different markets. Oil prices in recent years have been more stable in Euro than Dollar and hence Euro should replace Dollar as the unit of account, as the present dollar oil trading imposes a currency risk. Farooq Q. Akram (2004) explored the possibility of non-linear relationship between crude oil prices and

the Norwegian exchange rates and found a negative relationship. Yue-Jun Zhang, Ying Fan, Hsien-Tang T Sai & Yi-Ming Wei (2008) analyzed the influence of US dollar exchange rate on the international crude oil price and found that a significant long-term equilibrium of co-integrating relationship can be identified between the two markets. Ayoub Yousefi & Tony S Wirjanto (2004) adopted a novel empirical approach to the crude oil price formation for the purpose of understanding the price reactions of OPEC member countries to changes in the exchange rate of US dollar against other major currencies and prices of other members and found the results broadly consistent with the view of the absence of a unified OPEC determined price in the international crude market literature. Eugenio J. Aleman (2008), while commenting on the status of US dollar as of November 2008, explains that the appreciation of the US dollar, as well as the slowdown in world demand, has put downward pressure on commodity prices, including oil, and these countries' currencies are experiencing a free fall. According to Evangelos Otto Simens (2008), the dollar is expected to continue its upward trend in 2009 and will become stronger with fall of oil prices. Martin Feldstein (2008), in his article, reflects on the link between oil price and US dollar, adding that the rise and fall of prices contributed to the decline of the dollar, and also analyzes what would be the effect if oil were priced in Euros. Verleger Jr. & Philip K (2008), in their article, discuss the connection between the US dollar's exchange rate and the movement of oil prices and said that although there is a clear connection between dollar and oil prices, there is no convincing explanation to it. According to Paul R. Krugman (1983), who developed a simple theoretical model of the effect of oil price increase on exchange rates, the initial effect and the long-term effect will run in opposite directions. Oil price increase will initially lead to dollar appreciation, but eventually lead to

dollar depreciation. According to Benjamin J. Cohen (2003), Euro is fated to remain a distant second to US dollar for four reasons; the persistent inertia of monetary behavior, cost of doing business in Euro, anti-growth bias built into Economic and Monetary Union (EMU) and ambiguous governance structure of EMU.

Objectives of the Study

- To study the relationship between crude oil prices and US dollar value in the world market.
- To understand the relationship between crude oil prices quoted in US dollar and Euro.
- To study the effect of oil prices in US dollar on exchange rates of other currencies (Euro, British Pounds, Swiss Franc and Indian Rupee).

Hypothesis of the Study

- Null Hypothesis H₀: There is no significant relationship between crude oil prices and Rupee value.

Methodology of the Study

Research Design

Research design is descriptive in nature as it is aimed at gaining added knowledge and better understanding of oil prices and its impact on value of different currencies, reflecting the global economic trends.

Sampling Method

Convenient Sampling Method was adapted to choose the period of study and currencies according to the availability of data. The study was undertaken for a period of 9 years from Jan 2000 to Nov 2008. The sample elements consist of Oil Price in US Dollar, Oil Price in Euro, US Dollar Index (USD_X), Euro-US Dollar exchange rates (EUR/USD), British Pound-US Dollar exchange rates (GBP/USD), US Dollar-Swiss Franc exchange rates (USD/

CHF) and US Dollar-Indian Rupee exchange rates (USD/INR).

Data Collection

The entire data set is secondary data collected from the official websites of Department of Energy & Federal Reserve, USA. Sample size is 107 (for each sample element), the sample frequency being monthly.

Tools used for Data Analysis

Correlation Technique and Descriptive Statistics, using Mean and Standard Deviation were used for the analysis. Line Graphs and Bar Charts were used for pictorial representations of the relationships.

Analysis and Findings of The Study

Oil Price in USD versus USD_X

USD_X is an index or measure of the value of the US Dollar relative to a basket of foreign currencies, representing the majority of the country's most significant trading partners. Hence, this index is considered to be the true representation of the value of US dollar in the world market. Oil producers sell their products in the international markets in US dollar. Hence, the relationship between oil prices and US dollar value can be best understood by measuring the correlation between oil prices in USD and USD_X. A perfect correlation is represented by a correlation coefficient of 1; perfect negative correlation by -1 and zero represents no correlation.

Table -1 shows that there is a very high negative correlation (Correlation coefficient of -0.911) between Crude Oil Price and US Dollar Index. Hence it is inferred that when the oil price slides down, the dollar index will move up, and vice versa. **Figure- 1 and Figure - 2** clearly show how these two move in opposite directions.

Table -2 shows that crude oil prices in US Dollar and Euro have a very high positive

correlation (Correlation coefficient 0.978). Figure -3 shows that although the oil price, both in Dollar and Euro, move in the same direction, the volatility appears to be steeper in Dollar than in Euro, especially during the years 2007 and 2008. Analyzing further, Table -3 shows that standard deviation of oil prices in Dollar, which was almost the same as that in Euro during early 2000s, has started increasing during the later part. It has increased steeply during the years 2007 and 2008, indicating that Euro is more stable than dollar in oil trade. We can observe this fact very clearly in **figure -3**.

Oil Price versus Currency Exchange Rates

US Dollar value records a high negative correlation with crude oil prices and hence the exchange rates of other currencies also have a resultant effect because many of them are pegged to dollar. Dollar is still accepted as mother of currencies and it is the dominant currency for reserves and transactions in the world market. Hence an analysis of the effect of oil price on exchange rates will help us understand the economic trend and currency fluctuations of these countries in the current economic scenario.

We can infer the following findings from **Table- 4 :**

- Oil price in Dollars has a significant relationship with the exchange rates of various currencies. The exchange rates, where the base currency is USD, show a negative correlation whereas exchange rates, where quote currency is USD, show a positive correlation. This means that currency values other than USD are positively correlated to oil prices and they tend to lose value against dollar when oil prices fall. The correlation is less in case of INR (-.662) as compared to the popular currencies EUR (.863), GBP (.751) and CHF (-.764).

- Exchange rates of popular currencies show a high correlation with each other (0.938 in case of EUR/USD and GBP/USD, -0.965 in case of EUR/USD and USD/CHF, -0.904 in case of GBP/USD and USD/CHF) as compared to INR with other currencies (-0.720 in case of EUR/USD and USD/INR, -0.787 in case of GBP/USD and USD/INR and 0.580 in case of USD/CHF and USD/INR). This implies that the oil effect and dollar effect on Rupee exchange rate is comparatively less.

Testing of Hypothesis

Table- 5 shows that the calculated value of significance (0.000) is less than the assumed significance value (0.05) and hence the null hypothesis is rejected and alternative hypothesis is accepted. In other words, there is significant relationship between crude oil prices in Dollars and Rupee value.

Conclusion

Crude oil prices and US Dollar value have a high negative correlation, indicating that the fall in oil prices will strengthen the dollar and oil price hike will make the dollar weak. This supports the present scenario where it is observed that the USD is gaining against almost all popular currencies in spite of the fact that American economy is facing a severe down fall. Although oil price in Dollar and Euro show a high positive correlation, analyzing year-wise standard deviation of oil prices show that Euro is more stable compared to US Dollar, in oil trade. Thus, the study supports the proposed shift in oil trade from Dollar to Euro, which is being given a serious thought by some of the oil exporting countries. Oil prices in Dollar have a significant positive influence on the exchange rates of other currencies and fall in oil prices tends to make the currencies lose against dollar. However, the level of influence is low in the case of Indian Rupee as compared to that of British Pound and Swiss Franc. These findings

can be helpful to the developing countries to frame their international business strategies.

Scope for Further Study

The study has a very wide scope and it can be extended to cover more currencies and currency crosses. The present research, which is restricted to crude oil prices, can be extended to other oil products. It can also be extended to cover a longer period. Business strategies can be framed giving effect to the findings of this analysis and reducing the risk associated with the foreign trade. More research in this area, giving importance to the adverse effects of over dependence on Dollar, will help the policy makers of the globe to frame strategies such as replacing Dollar with Euro or any other stable currency, in foreign trade in general and oil trade in particular.

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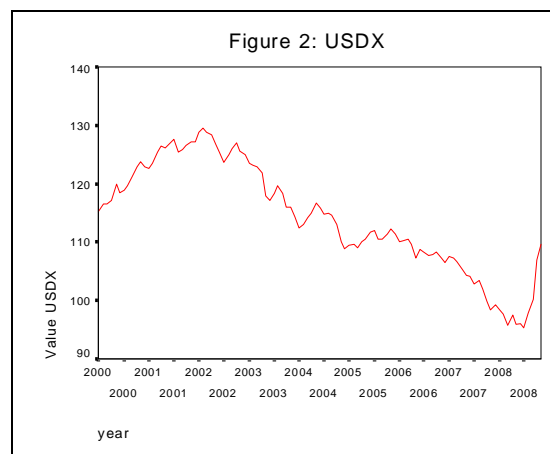
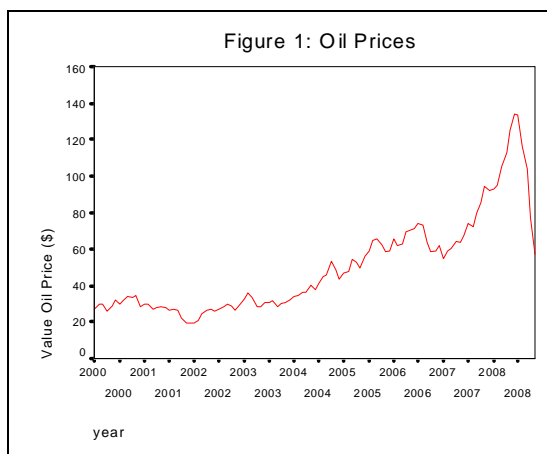
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Table- 1
Correlations – Crude Oil Price versus USDX

		Oil Price (\$)	USDX
Oil Price (\$)	Pearson Correlation	1	-.911(**)
	Sig. (2-tailed)	.	.000
	N	107	107
USDX	Pearson Correlation	-.911(**)	1
	Sig. (2-tailed)	.000	.
	N	107	107

** Correlation is significant at the 0.01 level (2-tailed).



Oil Price in USD versus Oil Price in EUR

Table -2
Correlations - Oil Price in USD versus Oil Price in EUR

		Oil Price (\$)	Oil Price (Euro)
Oil Price (\$)	Pearson Correlation	1	.978(**)
	Sig. (1-tailed)	.	.000
	N	107	105
Oil Price (Euro)	Pearson Correlation	.978(**)	1
	Sig. (1-tailed)	.000	.
	N	105	105

** Correlation is significant at the 0.01 level (1-tailed).

Table - 3 : Descriptive Statistics - Oil Price in Dollar & Euro

Year	Price per barrel	Minimum	Maximum	Mean	Std. Deviation
2000	Oil Price (\$)	25.7200	34.4200	30.300833	2.6682151
	Oil Price (Euro)	24.03	38.01	31.0583	4.60749
2001	Oil Price (\$)	19.3900	29.6100	25.945833	3.5678296
	Oil Price (Euro)	20.97	32.64	27.3250	3.88572
2002	Oil Price (\$)	19.7100	29.6600	26.114167	3.1766147
	Oil Price (Euro)	21.99	29.05	26.3842	2.25846
2003	Oil Price (\$)	28.1100	35.8300	31.120000	2.3175889
	Oil Price (Euro)	22.33	30.42	25.6050	2.56595
2004	Oil Price (\$)	34.3100	53.2800	41.442500	5.8681112
	Oil Price (Euro)	24.40	39.86	30.7600	4.55569
2005	Oil Price (\$)	46.8400	65.5900	56.492500	6.2609295
	Oil Price (Euro)	33.93	52.05	43.9108	6.21153
2006	Oil Price (\$)	58.8900	74.4100	66.018333	5.4768983
	Oil Price (Euro)	45.62	58.08	51.9058	4.44651
2007	Oil Price (\$)	54.5100	94.7700	72.316667	13.2173882
	Oil Price (Euro)	41.30	62.94	52.6342	6.76584
2008	Oil Price (\$)	57.3100	133.8800	104.885455	23.5944232
	Oil Price (Euro)	62.63	85.03	72.7422	8.47211

Figure 3: Standard Deviation of Oil prices in Dollar & Euro

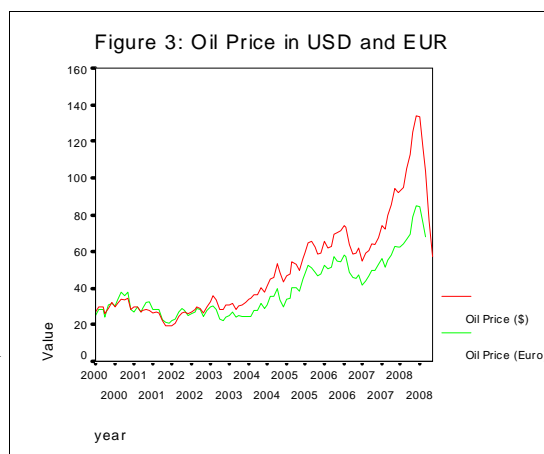
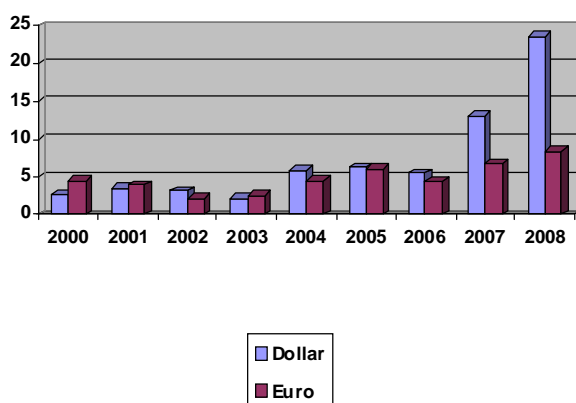


Table - 4
Correlation Matrix – Oil Price versus Currency Exchange Rates

		Oil Price (\$)	EUR/ USD	GBP/ USD	USD/ CHF	USD/ INR
Oil Price (\$)	Pearson Correlation	1	.863(**)	.751(**)	-.764(**)	-.662(**)
	Sig. (2-tailed)	-	.000	.000	.000	.000
EUR/ USD	Pearson Correlation	.863(**)	1	.938(**)	-.965(**)	-.720(**)
	Sig. (2-tailed)	.000	-	.000	.000	.000
GBP/ USD	Pearson Correlation	.751(**)	.938(**)	1	-.904(**)	-.787(**)
	Sig. (2-tailed)	.000	.000	.	.000	.000
USD/ CHF	Pearson Correlation	-.764(**)	-.965(**)	-.904(**)	1	.580(**)
	Sig. (2-tailed)	.000	.000	.000	.	.000
USD/ INR	Pearson Correlation	-.662(**)	-.720(**)	-.787(**)	.580(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.
	N	107	107	107	107	107

** Correlation is significant at the 0.01 level (2-tailed).

Table - 5
Testing of Hypothesis

		Oil Price (\$)	USD/INR
Oil Price (\$)	Pearson Correlation	1	-.662(**)
	Sig. (2-tailed)	.	.000
	N	107	107
USD/INR	Pearson Correlation	-.662(**)	1
	Sig. (2-tailed)	.000	.
	N	107	107

** Correlation is significant at the 0.01 level (2-tailed).