Impact Of Dollar Fluctuation On
Gold And Crude Oil Prices

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INTRODUCTION

❂**Gold :** In India, Gold has immense value from the perspective of religion, economic reserve, wealth creation, ornaments and financial securities. In India, the demand for gold is highest as compared to other developed and developing countries.[1] According to IMF, about 58% of the countries hold gold as reserve. Even gold is the best commodity used for hedging against inflation[2]. The correlation between inflation and gold prices for the period of 1979-1999 was -0.13658[3]. It is not only in India, but in other countries also, it is considered as an important commodity. The global supply of gold is approximately as follows :

❂ 60% mine output;

❂ 35% sales from above-ground stocks (old gold scrap, central bank gold, sales by investors);

❂ 5% forward sales and options.

The major suppliers for the gold are South África, North America (USA, Canada, etc.), Australia, Commonwealth of Independent States (former Soviet Union), China, the Pacific Rim, and Latin America.

❂**Crude Oil :** India imports 70 per cent of its crude oil requirement from the OPEC countries[4]. So, the oil price fluctuation affects the economy. The payment made for import is in foreign currency, hence, the appreciation or depreciation of rupee value affects the prices of oil. The Reserve Bank of India had reportedly estimated that every one dollar rise in the international price per barrel of crude oil adds $600 million (around ₹ 2,800 crore) to the country's oil import bill.

❂**US $:** The Dollar is one of the main contents of this paper, as this paper discusses the role and properties of the USD. The US Dollar is widely accepted as the means of both international and domestic payments. Unlike before the 1990s, when the average income level and savings were generally very low, the economic reforms have improved living standards and savings of the population substantially. Due to the rising and falling exchange rates and domestic barrier for foreign trade, the export-import related business faced problem. In addition to that, the importance of hard currencies in households' savings proportion have made the public much more aware of the exchange rate issues and interested in understanding details about the exchange rates of currencies. The government intervention in domestic currency valuation also makes exchange rate an important factor. During the period of frequent USD reserve shortfall, which is unsafe for settling debts and trade payments, the government usually had to intervene in different ways. An example of such interventions is that on 20-Dec-2003, the central bank sold USD 20 million to commercial banks to import gold during the domestic 25% gold price hike over a year.

The availability of USD plays a very important role in economic transactions, and for the safety of the economy. The general observation - like a weak dollar makes crude oil cheaper, which in turn, increases the demand from buyers with stronger currencies, thus escalating the price of crude oil[7] or the fall in the rupee primarily being attributed to the high crude oil prices, which touched an all time high of over $135 per barrel on May 22,2008[6]. The importance of US dollar as a common currency for trade, affects the prices of crude oil and Gold. In this paper, the researcher tried to find out - *Whether There Is Any Relationship Between ₹ /$ Exchange Rate Volatility And Relationship Between Price Of Crude Oil And Gold.*

REVIEW OF PRIOR RESEARCH

The first analyses on the effect of exchange rate volatilities on commodity prices were done by **Ridler and Yandle (1972)**[5]. They started with finding an equilibrium situation between the world demand for imports and world supply of

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exports. The demand of import bill considered only world price of the commodity in importers' currency. And supply of export bill considered only world price of the commodity in exporters' country. Further study on Macroeconomic announcement in US and its impact on gold price were carried out by **Cai et al in 2001**. He examined the impact of 23 regularly released macroeconomic announcements in the United States and found that employment rate, GDP, CPI and personal income were main 4 factors responsible for significant effects on the volatility of the gold market[8]. **Feldstein (1980)** showed that a rise in expected inflation will increase the relative price of gold[9]. **Chua and Woodward (1982)** provided empirical evidence that, for U.S. investors', gold is an effective hedge medium against both expected and unexpected inflation[10].

While **Sjaastad and Scacciavillani (1996)** found that floating exchange rates among the major currencies have been a major source of price instability in the world gold market. But their focus was on the appreciation or depreciation of European currencies and its effect on the price of gold in other countries[11]. In "*Exchange Rate of US Dollar With Indian Rupee*" **Ganesh Mani and Srivyal Vuyyuri** came up with an empirical finding that the exchange rate has attained significance at 5% level of significance and has a favorable effect on the price of gold[3].

RESEARCH METHODOLOGY
OBJECTIVES
1. To know the effects of ₹/$ exchanger rate volatility on the price of Gold.
2. To know the effects of ₹/$ exchanger rate volatility on the price of Crude oil.
3. Is the strengthening of ₹ reducing the price of Gold and Crude oil?

RESEARCH METHOD
This study examines the relationship between two different variables, the ₹/$ exchange rate and the movement of two international commodities, Gold and Crude oil. Before find out the relationship between variables, Dickey Fuller unit root test was used to prove whether the data are stationary or not. After finding out the result of the ADF test, correlation and regression analysis were used to find out the positive or negative correlation among the variables.

WHY STATIONARY TIME SERIES ARE SO IMPORTANT?
A type of stochastic process that has received a great deal of attention and scrutiny by time series analysts is the so-called stationary stochastic process. A stochastic process is said to be stationary if its mean and variance are constant over time and the value of the covariance between two time period depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed. In short, a time series is stationary, if its mean, variance, and auto-covariance (at various lags) remains the same, no matter at what point of time these variables are measured.

If a time series is non-stationary, we can study its behavior only for the time period under consideration. Each set of time series data will, therefore, be for a particular episode. As a consequence, it is not possible to generalize it for the other time period. Therefore, for the purpose of forecasting, such (non-stationary) time series may be of little practical value.

HYPOTHESES
1. HO: There is a presence of unit root (a=1-non stationary).

   H1: There is no presence of unit root (a ≠1 stationary).
2. HO: The Crude oil prices do not increase with increase in ₹/$ exchange rate.

   H1: The Crude oil prices increase with increase in ₹/$ exchange rate.
3. HO: The Gold prices do not increase with increase in ₹/$ exchange rate.

   H1: The Gold prices increase with increase in ₹/$ exchange rate.

SAMPLE AND DATA
The sample data consists of 5 years weekly (2005-2009) close of gold, crude oil and ₹/$ exchange rate. The collected

data are secondary and collected from the financial websites. The data were collected and hypothesized to find a relationship between the ₹/$ exchange rate and commodity price, Gold and Crude oil. The sample data consisted of 259 weekly closing of gold, crude oil and ₹/$ exchange rate respectively. To find out the stationary features and correlation-regression, Gretl software was used. The first step is to know whether the data are stationary or not and for that, the Augmented Dickey Fuller test was used. And then, Correlation and Regression model was used to find the relationship between variables.

AUGMENTED DICKEY FULLER (ADF) TEST

In autoregressive time series models, the presence of unit root causes a violation of the assumptions of classical linear regressions. A unit root means that the observed time series is not stationary. When nonstationary time series are used in a regression model, one may obtain apparently significant relationships from unrelated variables. This phenomenon is called *Spurious Regression*. One of the most widespread unit root test is the Augmented Dickey Fuller (ADF) test. The standard Dickey Fuller test estimates following equation:

$$\Delta y_t = \alpha + \beta t + \gamma y_t - 1 + \delta_{1\Delta yt-1+} \ldots \ldots + \delta_{1p\Delta yp-1} + \Sigma t$$

Where α is a constant, β is the coefficient on a time trend and p is the lag order of the autoregressive process. Imposing the constraints $\alpha = 0$ *and* $\beta = 0$ corresponds to modeling a random walk and using the constraint $\beta = 0$ corresponds to modeling a random walk with a drift. The unit root test is then carried out under the null hypothesis $\gamma = 0$ against the alternative hypothesis of $\gamma < 0$.

REGRESSION ANALYSIS AND CORRELATION COEFFICIENTS

This research used descriptive analysis, regression analysis and correlation coefficients. Regression Analysis is the statistical technique that identifies the relationship between two or more quantitative variables: a dependent variable, whose value is to be predicted, and an independent or explanatory variable about which knowledge is available. The technique is used to find the equation that gives the relationship between the variables.

A simple regression analysis can show that the relation between an independent variable X and a dependent variable Y is linear, using the simple linear regression equation **Y= a + bX** (where a & b are constants). Multiple regression will provide an equation that predicts one variable from two or more independent variables, **Y = a + bX1 + cX2 + dX3**. Regression analysis is used to understand the statistical dependence of one variable on other variables. The technique can show what proportion of variance between variables is due to the dependent variable, and what proportion is due to the independent variables. The relation between the variables can be illustrated graphically, or more usually, using an equation. Correlation Analysis is based on the relationship between two or more variables. The degree of relationship between the variables under consideration is measured through the correlation analysis. The measure of correlation called correlation coefficient summarizes in one figure, the direction and degree of correlation. The direction of change is indicated by + or - signs; the former refers to the movement in the same direction and the latter in the opposite direction; and an absence of correlation is indicated by zero. This coefficient ranges between -1 and 1. The correlation coefficient is also said to be a measure of covariance between two series.

EMPIRICAL RESULTS

Results for the Dickey Fuller unit root test for the exchange rate and macroeconomic variables in log difference.
Null Hypothesis HO: There is a presence of unit root (a=1-non stationary)

Table 1: Dickey Fuller Unit Root Test For The Exchange Rate Of Gold & Crude Oil In Log Difference

Variables	With Constant		With Constant and Trend	
	t-statistics	p-value	t-statistics	p-value
Dollar	-10.125	0	-10.1142	0
Gold	-12.4852	0	-12.4618	0
Crude oil	-9.38334	0	-9.39018	0

INTERPRETATION

For all the variables (Refer to Table 1) viz. the dollar, Gold, Crude oil, the calculated t statistics and associated probability suggests that we can reject the null hypothesis that there is a presence of non stationarity in the data. So the t-statistics indicate that the series are stationary.

Table: 2: Correlation Coefficients, Using The Observations 07/01/2005 - 25/12/2009 (Missing Values Were Skipped) 5% Critical Value (two-tailed) = 0.1219 For N = 259

ld_Gold	ld_Crude oil	ld_Dollar	
1.0000	0.1437	-0.1372	ld_Gold
	1.0000	-0.1866	ld_Crude oil
		1.0000	ld_Dollar

INTERPRETATION

The above Table 2 indicates that the correlation coefficients between Dollar and Gold is -0.1372 and this leads to a negative correlation, which means both variables move in a different direction. Decrease in rate of Dollar leads to an increase in gold prices and vice versa. Dollar and Crude oil correlation coefficients are negative like -0.1866 and this leads to the conclusion that rates of Dollar and Crude oil move in the opposite direction. In addition to that, the correlation coefficients between Gold and Crude Oil is positive like 0.1437, which means positively correlated leads move both variables in the same direction.

REGRESSION ANALYSIS

Table 3: Regression Analysis- Independent Variable:- ₹/$ Exchange Rate Dependent Variable: Crude Oil

	Coefficient	Std. Error	t-ratio	p-value
Constant	0.00304941	0.00283641	1.0751	0.28335
ld_Dollar	-0.866238	0.285087	-3.0385	0.00262

Mean dependent var	0.002820	Durbin-Watson	1.503479
R-squared	0.034809	Adjusted R-squared	0.031039

INTERPRETATION

Negative correlation is found between ₹/$ exchange rate and Crude oil over 5 years. By observing Table 3, we can say that 1% change increase in ₹/$ exchanger rate leads to -0.866% decrease in Crude oil prices. The standard error is 0.285, which is at an affordable level; it means that the error in linear relation is not so high. It supports in predicting the price of crude oil with the help of ₹/$ rate with low error. **So, the null hypothesis "The Crude oil prices do not increase with increase in ₹/$ exchange rate" is accepted.**

Table 4 : Regression Analysis- Independent Variable:- ₹/$ Exchange Rate Dependent Variable: Gold Price In $

	Coefficient	Std. Error	t-ratio	p-value
Constant	0.00378048	0.00205201	1.8423	0.06658
ld_Dollar	-0.457089	0.206247	-2.2162	0.02756

Mean dependent var	0.003659	Durbin-Watson	2.221491
R-squared	0.018825	Adjusted R-squared	0.014992

INTERPRETATION

Negative correlation is found between ₹/$ exchange rate and Gold prices over 5 years. By observing Table 4, we can

say that 1% change increase in ₹/$ exchanger rate leads to -0.457% decrease in Gold price. The standard error is 0.206, which is at an affordable level; it means that the error in linear relation is not so high. It supports in predicting the price of Gold,   with the help of ₹/$ rate with lower error. **So, the null hypothesis," The Gold prices do not increase with increase in ₹/$ exchange rate" is accepted.**

CONCLUSION

1) In this study, weekly data of Dollar, Gold and crude oil for last five years (2005-2009) were taken and the study found an inverse relationship between the dollar and the prices of Crude Oil and Gold.

2) Anyone who follows the gold and currency markets closely will realize that the US$ index and gold price generally trend in opposite directions. The reason for an inverse relation is that in one respect, gold is just another currency. It is no longer money in the true meaning of the word, but it tends to trade as if it were. As a result, when the dollar weakens on the foreign exchange market over an extended period, then the US$ gold price will generally rise during the same period; and when the dollar strengthens over many months, the US$ gold price will usually fall.

3) There are, of course, leads and lags and there's no reason to expect that percentage changes in one will be accompanied by equal-and-opposite percentage changes in the other. In discussing the dollar-gold relationship in the above paragraphs, the focus is on the words *"generally", "usually" and "tend"* because over the decades, there have been a few periods when gold and the dollar have not trended in opposite directions. According to Chart 2, during the period of 10 years, there is positive relation during May to November 2005.

4) The statistical tools (ADF, Regression and correlation) which are used to test the relationship between Dollar and prices of Gold and crude oil, provides the same result that there is an inverse relationship between Dollar and the prices of gold and crude oil.

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APPENDICES

Graph 1 : Exception In Negative Relationship Between USD And Gold Price

Graph 2: Showing Price Of Gold Between April 1971 And April 2001
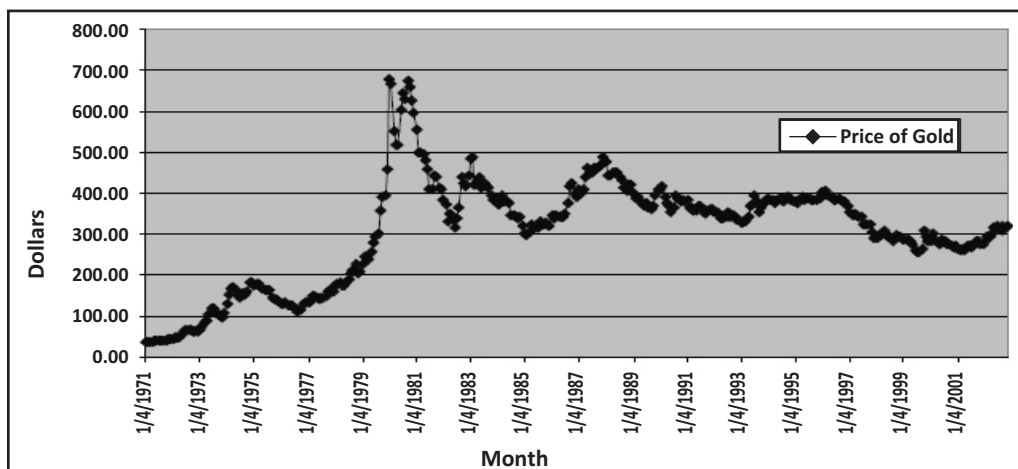
Source : Compiled from Handbook of Statistics on Indian Economy 2000 published by Reserve Bank Of India

Graph 3: The Weekly Movement Of ₹ / Dollar In Last Five Years (2005-2009)

Graph 4: The Weekly Movement Of Gold In Last Five Years (2005-2009)

Graph 5: The Weekly Movement Of Gold In Last Five Years (2005-2009)

Crude Oil

Table 1

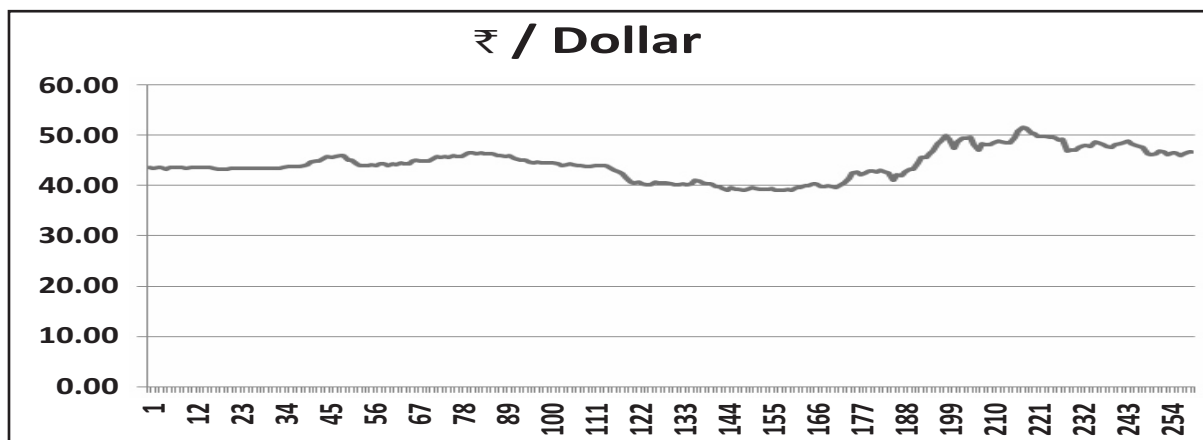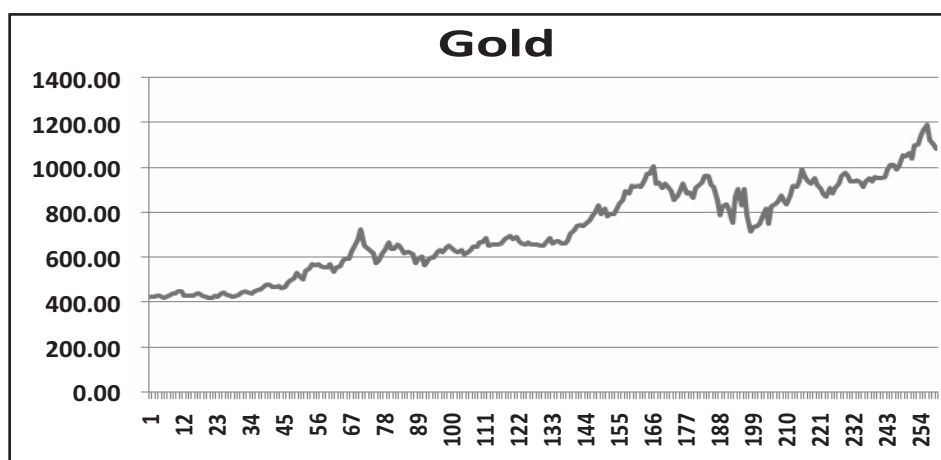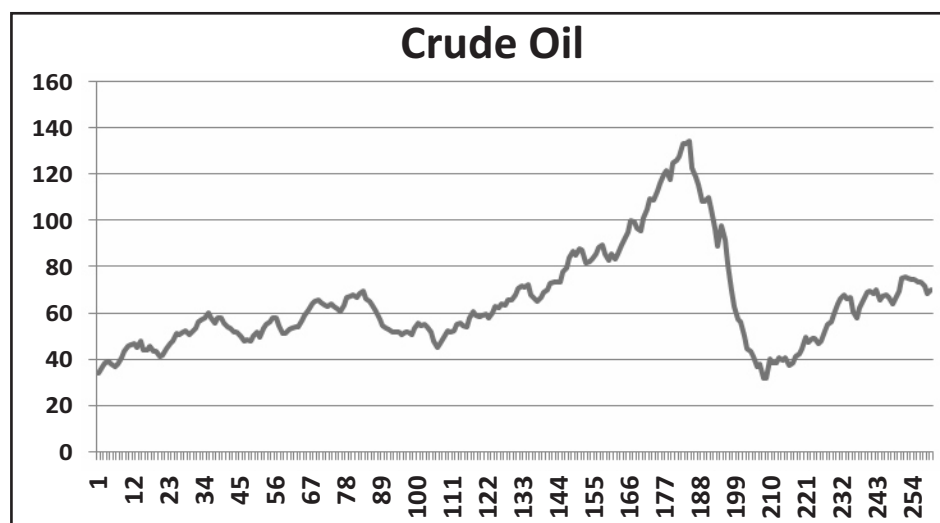| 7 January 2005 to 29 June 2007				6 July 2007 to 25 Dec 2009			
DATE	CRUDE OIL	GOLD WEEKLY	₹/$	DATE	CRUDE OIL	GOLD WEEKLY	₹/$
Jan 07, 2005	33.79	422.20	43.63	Jul 06, 2007	67.65	648.75	40.36
Jan 14, 2005	36.96	422.50	43.55	Jul 13, 2007	70.63	666.50	40.26
Jan 21, 2005	38.16	423.30	43.64	Jul 20, 2007	71.71	681.60	40.18
Jan 28, 2005	39.14	426.80	43.66	Jul 27, 2007	71.36	660.50	40.38
Feb 04, 2005	37.92	415.90	43.34	Aug 03, 2007	72.19	670.50	40.25
Feb 11, 2005	36.58	418.85	43.70	Aug 10, 2007	68.09	668.50	40.45
Feb 18, 2005	38.08	427.10	43.73	Aug 17, 2007	66.29	657.50	41.04
Feb 25, 2005	40.57	434.25	43.61	Aug 24, 2007	65.16	660.85	40.90
Mar 04, 2005	43.38	433.45	43.64	Aug 31, 2007	66.47	672.00	40.63
Mar 11, 2005	45.46	443.70	43.45	Sep 07, 2007	68.93	701.00	40.40
Mar 18, 2005	46.42	443.70	43.67	Sep 14, 2007	70.24	716.35	40.40
Mar 25, 2005	46.97	425.15	43.62	Sep 21, 2007	72.62	737.00	39.84
Apr 01, 2005	45.32	427.15	43.62	Sep 28, 2007	73.5	743.00	39.75
Apr 08, 2005	47.69	425.20	43.66	Oct 05, 2007	73.65	737.50	39.47
Apr 15, 2005	44.23	424.60	43.70	Oct 12, 2007	73.39	749.50	39.16
Apr 22, 2005	43.96	434.60	43.66	Oct 19, 2007	77.84	763.00	39.60
Apr 29, 2005	45.9	435.70	43.48	Oct 26, 2007	79.47	779.15	39.30
May 06, 2005	43.36	425.15	43.35	Nov 02, 2007	83.69	796.50	39.25
May 13, 2005	43.62	420.00	43.35	Nov 09, 2007	86.88	831.50	39.11
May 20, 2005	41.17	418.00	43.34	Nov 16, 2007	85.21	789.75	39.24
May 27, 2005	41.76	418.25	43.41	Nov 23, 2007	87.93	815.25	39.65
Jun 03, 2005	44.79	423.55	43.50	Nov 30, 2007	87.22	783.50	39.52
Jun 10, 2005	46.89	422.55	43.48	Dec 07, 2007	81.95	792.50	39.36
Jun 17, 2005	47.77	437.50	43.50	Dec 14, 2007	82.44	789.50	39.30
Jun 24, 2005	51.22	440.55	43.50	Dec 21, 2007	83.41	810.50	39.30
Jul 01, 2005	50.89	432.60	43.45	Dec 28, 2007	85.52	833.75	39.43

Table 1 (Contd.)

Jul 08, 2005	52.01	424.40	43.51	Jan 04, 2008	88.41	855.00	39.15
Jul 15, 2005	52.57	418.35	43.45	Jan 11, 2008	89.6	891.00	39.15
Jul 22, 2005	50.59	425.00	43.40	Jan 18, 2008	85.36	882.00	39.20
Jul 29, 2005	51.73	429.00	43.40	Jan 25, 2008	82.66	918.25	39.33
Aug 05, 2005	53.65	438.25	43.42	Feb 01, 2008	85.36	914.75	39.12
Aug 12, 2005	56.28	447.25	43.48	Feb 08, 2008	83.21	916.25	39.61
Aug 19, 2005	57.56	439.65	43.51	Feb 15, 2008	85.5	912.50	39.65
Aug 26, 2005	57.66	436.75	43.60	Feb 22, 2008	89.61	943.00	40.04
Sep 02, 2005	59.84	443.60	43.87	Feb 29, 2008	91.74	971.50	39.96
Sep 09, 2005	58.09	448.25	43.76	Mar 07, 2008	95.15	972.50	40.42
Sep 16, 2005	55.86	457.20	43.81	Mar 14, 2008	99.76	1003.50	40.40
Sep 23, 2005	58.11	462.65	43.80	Mar 21, 2008	99.67	925.75	39.86
Sep 30, 2005	57.79	473.25	43.94	Mar 28, 2008	96.65	934.25	39.76
Oct 07, 2005	55.47	472.70	44.30	Apr 04, 2008	95.56	905.50	39.93
Oct 14, 2005	54.14	466.00	44.76	Apr 11, 2008	101.22	927.75	39.84
Oct 21, 2005	53.64	462.85	45.01	Apr 18, 2008	105.27	908.75	39.73
Oct 28, 2005	51.84	470.75	45.01	Apr 25, 2008	109.25	891.50	40.13
Nov 04, 2005	51.74	460.50	45.43	May 02, 2008	108.98	853.50	40.55
Nov 11, 2005	50.31	466.75	45.77	May 09, 2008	112.96	876.00	41.55
Nov 18, 2005	47.86	485.85	45.70	May 16, 2008	116.32	897.00	42.50
Nov 25, 2005	48.17	495.90	45.77	May 23, 2008	120.16	927.50	42.68
Dec 02, 2005	48.08	502.50	46.11	May 30, 2008	121.92	885.75	42.15
Dec 09, 2005	50.11	525.50	46.11	Jun 06, 2008	117.82	890.50	42.63
Dec 16, 2005	51.58	507.00	45.19	Jun 13, 2008	125.28	866.00	42.86
Dec 23, 2005	49.37	500.00	45.11	Jun 20, 2008	125.93	907.50	42.86
Jan 06, 2006	53.28	535.25	44.32	Jun 27, 2008	128.02	919.50	42.78
Jan 13, 2006	55.05	548.25	44.10	Jul 04, 2008	133.6	931.25	43.17
Jan 20, 2006	56.45	567.25	44.10	Jul 11, 2008	133.32	962.75	42.80
Jan 27, 2006	57.7	561.75	44.00	Jul 18, 2008	134.44	959.75	42.66
Feb 03, 2006	57.57	569.00	44.14	Jul 25, 2008	122.59	920.50	41.10
Feb 10, 2006	54.7	557.00	44.10	Aug 01, 2008	119.05	912.50	42.26
Feb 17, 2006	51.35	551.70	44.33	Aug 08, 2008	115.62	852.50	42.05
Feb 24, 2006	51.43	554.15	44.35	Aug 15, 2008	108.11	786.50	42.80
Mar 03, 2006	52.96	565.00	44.09	Aug 22, 2008	108.15	824.00	43.32
Mar 10, 2006	53.61	535.00	44.31	Aug 29, 2008	110.04	833.00	43.25
Mar 17, 2006	53.8	552.75	44.26	Sep 05, 2008	105.26	808.50	44.63
Mar 24, 2006	54.18	556.75	44.49	Sep 12, 2008	96.46	750.25	45.62
Mar 31, 2006	56.68	582.00	44.48	Sep 19, 2008	88.73	869.00	45.71
Apr 07, 2006	58.82	589.75	44.46	Sep 26, 2008	97.9	902.00	46.48
Apr 14, 2006	60.99	593.00	45.02	Oct 03, 2008	91.7	828.00	47.01
Apr 21, 2006	64	623.50	45.05	Oct 10, 2008	80.91	900.50	48.41
Apr 28, 2006	64.89	644.00	44.86	Oct 17, 2008	69.28	784.50	48.88
May 05, 2006	65.54	678.00	44.85	Oct 24, 2008	62.81	712.50	49.96
May 12, 2006	64.68	725.00	44.89	Oct 31, 2008	57.53	730.75	49.40
May 19, 2006	63.38	651.50	45.35	Nov 07, 2008	56.26	735.25	47.54

Table 1 (Contd.)

May 26, 2006	62.83	642.25	45.81	Nov 14, 2008	50.23	747.50	48.78
Jun 02, 2006	63.84	632.25	45.67	Nov 21, 2008	44.57	774.50	49.53
Jun 09, 2006	62.97	616.00	45.81	Nov 28, 2008	43.61	814.50	49.55
Jun 16, 2006	61.46	574.00	45.69	Dec 05, 2008	41.07	749.00	49.60
Jun 23, 2006	60.89	579.60	46.01	Dec 12, 2008	36.58	826.50	48.20
Jun 30, 2006	63.44	613.50	45.87	Dec 19, 2008	37.8	835.75	47.05
Jul 07, 2006	66.54	631.50	45.84	Dec 26, 2008	31.84	843.50	48.42
Jul 14, 2006	67.24	663.25	46.19	Jan 02, 2009	31.76	874.50	48.25
Jul 21, 2006	67.98	634.00	46.64	Jan 09, 2009	39.84	847.25	48.26
Jul 28, 2006	66.57	637.10	46.53	Jan 16, 2009	38.24	833.75	48.62
Aug 04, 2006	68.13	652.25	46.42	Jan 23, 2009	38.21	875.75	49.00
Aug 11, 2006	69.52	644.50	46.50	Jan 30, 2009	40.6	919.50	48.83
Aug 18, 2006	66.15	613.90	46.38	Feb 06, 2009	39.42	913.00	48.61
Aug 25, 2006	64.86	621.25	46.41	Feb 13, 2009	40.48	935.50	48.58
Sep 01, 2006	63.18	621.05	46.38	Feb 20, 2009	37.2	989.00	49.71
Sep 08, 2006	60.49	610.00	46.06	Feb 27, 2009	38.6	952.00	50.88
Sep 15, 2006	57.28	573.60	45.95	Mar 06, 2009	41.31	936.00	51.68
Sep 22, 2006	54.46	589.00	45.77	Mar 13, 2009	42.39	928.00	51.54
Sep 29, 2006	53.26	599.25	45.95	Mar 20, 2009	44.51	954.00	50.51
Oct 06, 2006	52.75	560.75	45.42	Mar 27, 2009	49.47	924.00	50.46
Oct 13, 2006	51.78	586.10	45.31	Apr 03, 2009	47.51	905.00	49.91
Oct 20, 2006	51.87	596.60	45.18	Apr 10, 2009	48.85	880.50	49.78
Oct 27, 2006	51.61	596.25	45.07	Apr 17, 2009	49.06	870.50	49.80
Nov 03, 2006	50.65	622.75	44.76	Apr 24, 2009	46.67	907.50	49.69
Nov 10, 2006	51.71	629.30	44.55	May 01, 2009	47.82	884.50	49.65
Nov 17, 2006	51.5	620.50	44.75	May 08, 2009	52.2	907.00	49.13
Nov 24, 2006	50.42	639.50	44.59	May 15, 2009	55.21	929.50	49.38
Dec 01, 2006	53.54	648.75	44.50	May 22, 2009	56.12	959.75	46.95
Dec 08, 2006	55.55	637.40	44.53	May 29, 2009	59.36	975.50	47.11
Dec 15, 2006	54.79	623.75	44.54	Jun 05, 2009	63.7	962.00	47.05
Dec 22, 2006	55.09	620.50	44.37	Jun 12, 2009	65.98	937.25	47.60
Dec 29, 2006	54	632.00	44.11	Jun 19, 2009	67.56	935.25	48.00
Jan 05, 2007	51.57	609.50	44.20	Jun 26, 2009	65.92	942.00	48.00
Jan 12, 2007	47.72	619.75	44.43	Jul 03, 2009	66.87	932.50	47.80
Jan 19, 2007	45.29	629.00	44.15	Jul 10, 2009	60.87	913.00	48.76
Jan 26, 2007	46.94	645.50	44.08	Jul 17, 2009	58.06	937.50	48.56
Feb 02, 2007	49.35	645.70	44.00	Jul 24, 2009	62.44	951.50	48.16
Feb 09, 2007	52.15	664.50	43.93	Jul 31, 2009	65.42	939.00	47.91
Feb 16, 2007	51.62	665.10	43.87	Aug 07, 2009	68.87	956.00	47.72
Feb 23, 2007	52.31	683.00	44.08	Aug 14, 2009	69.73	953.50	48.18
Mar 02, 2007	55.18	651.90	44.10	Aug 21, 2009	68.52	952.50	48.43
Mar 09, 2007	55.53	652.25	44.07	Aug 28, 2009	70.03	955.50	48.52
Mar 16, 2007	54.39	653.20	44.08	Sep 04, 2009	65.78	989.00	48.86
Mar 23, 2007	54.02	656.25	43.56	Sep 11, 2009	67.23	1008.25	48.39
Mar 30, 2007	58.08	661.75	43.10	Sep 18, 2009	67.65	1012.00	48.02

Table 1 (Contd.)

Apr 06, 2007	60.53	673.50	42.74	Sep 25, 2009	66.8	991.50	47.93
Apr 13, 2007	59.21	681.75	42.42	Oct 02, 2009	64.13	1003.57	47.61
Apr 20, 2007	58.66	691.40	41.70	Oct 09, 2009	66.32	1051.50	46.44
Apr 27, 2007	59.19	677.50	40.79	Oct 16, 2009	69.62	1047.50	46.20
May 04, 2007	59.76	688.80	40.58	Oct 23, 2009	74.8	1061.75	46.41
May 11, 2007	58.06	669.00	40.74	Oct 30, 2009	75.64	1040.00	46.90
May 18, 2007	60.29	657.00	40.36	Nov 06, 2009	75.31	1096.75	46.83
May 25, 2007	63.11	655.30	40.28	Nov 13, 2009	74.45	1104.00	46.24
Jun 01, 2007	62.1	666.50	40.27	Nov 20, 2009	74.36	1140.00	46.63
Jun 08, 2007	64.1	655.25	40.82	Nov 27, 2009	73.34	1166.50	46.55
Jun 15, 2007	63.45	653.10	40.52	Dec 04, 2009	73.52	1190.25	46.10
Jun 22, 2007	65.69	652.85	40.55	Dec 11, 2009	71.78	1124.00	46.47
Jun 29, 2007	65.51	650.50	40.58	Dec 18, 2009	68.51	1104.50	46.69
				Dec 25, 2009	69.94	1085.25	46.72