Anticipated series average monthly price of gold in using the time series of software minitab

Shaban Mohammadi[1]*, Mohammad Khademi[2]

[1] *Department of Accounting, Quchan Branch,Hakim Nezami University, Quchan, Iran*
[2] *Department of Accounting, Quchan Branch,Hakim Nezami University, Quchan, Iran*
*Corresponding author E-mail: shaban1362@gmail.com

Abstract

We can study the statistics, basic research to get the needs arising in different fields got considered. after knowing the statistics obtained from the trust issue is investigated, which is considered to be important. procedures because it is true that the correct result is achieved. and concluded with a detailed study on the mode of research is to identify the needs of current and non-current sources can be required by a suitable method found. the problem considered in this study in relation to the expected range of average monthly price of gold on the London market in terms of dollars. we are gathered here with the predicted theoretical and practical knowledge to study, and time series methods described above.

Keywords: *Forecasting; Time Series; Trend Fitting; Always Making.*

1. Introduction

The future of those who plan appropriately for it. merchants, institution or organization should be given to successful planning necessary to predict the future position to do it. there are several ways to do this. these methods can turn the past experience to predict future events. statistics relating to a variable that is expected to be available in the last period time series statistics say so. the purpose of a time series, a collection of statistical data that are collected at regular intervals equal. these data and the statistical methods used to analyze the time series is called. forecasting is an important element in management decisions, because any decision on the nature of the final performance of a sequence of events that occur subsequent decision. because management systems for planning and controlling the operations of an organization typically enjoy a forecast function. because the predicted never quite does not eliminate a risk. it is necessary that the decision-making process immediately following the forecast uncertainty is left to consider (Frankfurter et al. 1996). to measure the accuracy of the model was fitted to a series of three criteria, namely MAPE, MSD, MAD is used to measure them carefully or call measures of accuracy.

## 2. Anticipated series of the average monthly price of gold:

Monthly data relating to the supply price of one ounce of gold in dollar terms during the London Metal Market 1968 - 2007 AD, the site has been kitco.com as follows.

Row	year	month	gold	Row	year	month	gold
1	1968	Jan	35.20	241	1988	Jan	476.58
2	1968	Feb	35.20	242	1988	Feb	442.07
3	1968	Mar	35.20	243	1988	Mar	443.61
4	1968	Apr	37.90	244	1988	Apr	451.55
5	1968	May	40.70	245	1988	May	451.01
6	1968	Jun	41.10	246	1988	Jun	451.33
7	1968	Jul	39.50	247	1988	Jul	437.63
8	1968	Aug	39.20	248	1988	Aug	431.31
9	1968	Sep	40.20	249	1988	Sep	412.79
10	1968	Oct	39.20	250	1988	Oct	406.78
13	1969	Jan	42.30	253	1989	Jan	404.01
14	1969	Feb	42.60	254	1989	Feb	387.78
15	1969	Mar	43.20	255	1989	Mar	390.15
16	1969	Apr	43.30	256	1989	Apr	384.06
17	1969	May	43.46	257	1989	May	371.00
18	1969	Jun	41.44	258	1989	Jun	367.60
19	1969	Jul	41.76	259	1989	Jul	375.04
20	1969	Aug	41.09	260	1989	Aug	365,037
21	1969	Sep	40.87	261	1989	Sep	361.75
22	1969	Oct	40.44	262	1989	Oct	366.88
23	1969	Nov	37.40	263	1989	Nov	394.26
24	1969	Dec	35.17	264	1989	Dec	409.39
25	1970	Jan	34.94	265	1989	Jan	410.11
26	1970	Feb	34.99	266	1990	Feb	416.83
27	1970	Mar	35.09	267	1990	Mar	393.07
28	1970	Apr	35.62	268	1990	Apr	374.27
29	1970	May	35.95	269	1990	May	369.19
30	1970	Jun	35.44	270	1990	Jun	352.33
31	1970	Jul	35.32	271	1990	Jul	362.53
32	1970	Aug	35.38	272	1990	Aug	394.73
33	1970	Sep	36.19	273	1990	Sep	388.41
34	1970	Oct	37.52	274	1990	Oct	380.74
35	1970	Nov	37.44	275	1990	Nov	381.73
36	1970	Dec	37.44	276	1990	Dec	378.16
37	1971	Jan	37.87	277	1991	Jan	383.64
38	1971	Feb	38.74	278	1991	Feb	363.83
39	1971	Mar	38.87	279	1991	Mar	363.33

#	Year	Month	Value	#	Year	Month	Value
40	1971	Apr	39.01	280	1991	Apr	358.39
41	1971	May	40.52	281	1991	May	356.82
42	1971	Jun	40.10	282	1991	Jun	366.72
43	1971	Jul	40.95	283	1991	Jul	367.68
44	1971	Aug	42.73	284	1991	Aug	356.23
45	1971	Sep	42.02	285	1991	Sep	348.74
46	1971	Oct	42.50	286	1991	Oct	358.69
47	1971	Nov	42.86	287	1991	Nov	360.17
48	1971	Dec	43.48	288	1991	Dec	361.06
49	1972	Jan	45.75	289	1992	Jan	354.45
50	1972	Feb	48.26	290	1992	Feb	353.89
51	1972	Mar	48.33	291	1992	Mar	344.35
52	1972	Apr	49.03	292	1992	Apr	338.50
53	1972	May	54.62	293	1992	May	337.23
54	1972	Jun	62.09	294	1992	Jun	340.80
55	1972	Jul	65.67	295	1992	Jul	353.05

#	Year	Month	Value	#	Year	Month	Value
56	1972	Aug	67.03	296	1992	Aug	342.96
57	1972	Sep	65.47	297	1992	Sep	345.55
58	1972	Oct	64.86	298	1992	Oct	344.38
59	1972	Nov	62.91	299	1992	Nov	335.87
60	1972	Dec	63.91	300	1992	Dec	334.80
61	1973	Jan	65.14	301	1993	Jan	329.01
62	1973	Jan	74.20	302	1993	Feb	329.35
63	1973	Feb	84.37	303	1993	Mar	330.08
64	1973	Mar	90.50	304	1993	Apr	342.07
65	1973	Apr	101.96	305	1993	May	367.18
66	1973	May	120.12	306	1993	Jun	371.89
67	1973	Jul	120.17	307	1993	Jul	392.19
68	1973	Aug	106.76	308	1993	Aug	378.84
69	1973	Sep	102.97	309	1993	Sep	355.27
70	1973	Oct	100.08	310	1993	Oct	364.18
71	1973	Nov	94.82	311	1993	Nov	373.83
72	1973	Dec	106.72	312	1993	Dec	383.35
73	1973	Jan	129.19	313	1994	Jan	386.88
74	1974	Feb	150.23	314	1994	Feb	381.91
75	1974	Mar	168.42	315	1994	Mar	384.13
76	1974	Apr	172.24	316	1994	Apr	377.27
77	1974	May	163.27	317	1994	May	381.26
78	1974	Jun	154.10	318	1994	Jun	385.64
79	1974	Jul	142.98	319	1994	Jul	385.49
80	1974	Aug	154.64	320	1994	Aug	380.35
81	1974	Sep	151.77	321	1994	Sep	391.58
82	1974	Oct	158.78	322	1994	Oct	389.77
83	1974	Nov	181.66	323	1994	Nov	384.39
84	1974	Dec	183.85	324	1994	Dec	379.29
85	1975	Jan	176.27	325	1995	Jan	378.55
86	1975	Feb	179.59	326	1995	Feb	376.64
87	1975	Mar	178.16	327	1995	Mar	382.12
88	1975	Apr	169.84	328	1995	Apr	391.03
89	1975	May	167.39	329	1995	May	385.12
90	1975	Jun	164.24	330	1995	Jun	387.56
91	1975	Jul	165.17	331	1995	Jul	386.23
92	1975	Aug	163.00	332	1995	Aug	383.81
93	1975	Sep	144.09	333	1995	Sep	383.05
94	1975	Oct	142.76	334	1995	Oct	383.14
95	1975	Nov	142.42	335	1995	Nov	385.30
96	1975	Dec	139.30	336	1995	Dec	387.44
97	1976	Jan	131.49	337	1995	Jan	400.27
98	1976	Feb	131.07	338	1996	Feb	404.79
99	1976	Mar	132.58	339	1996	Mar	396.25
100	1976	Apr	127.94	340	1996	Apr	392.83
101	1976	May	126.94	341	1996	May	391.86
102	1976	Jun	125.71	342	1996	Jun	385.27
103	1976	Jul	117.76	343	1996	Jul	383.47
104	1976	Aug	109.93	344	1996	Aug	387.46
105	1976	Sep	114.15	345	1996	Sep	383.14
106	1976	Oct	116.14	346	1996	Oct	381.07
107	1976	Nov	130.48	347	1996	Nov	377.85
108	1976	Dec	133.88	348	1996	Dec	369.00
109	1977	Jan	132.26	349	1997	Jan	354.11
110	1977	Feb	136.29	350	1997	Feb	346.58
111	1977	Mar	148.22	351	1997	Mar	351.81
112	1977	Apr	149.16	352	1997	Apr	344.47
113	1977	May	146.60	353	1997	May	343.97
114	1977	Jun	140.77	354	1997	Jun	340.76
115	1977	Jul	143.39	355	1997	Jul	324.10
116	1977	Aug	144.95	356	1997	Aug	324.01
117	1977	Sep	149.52	357	1997	Sep	322.80
118	1977	Oct	158.86	358	1997	Oct	324.87

#	Year	Month	Value	#	Year	Month	Value
119	1977	Nov	162.10	359	1997	Nov	306.04
120	1977	Dec	160.45	360	1997	Dec	288.74
121	1977	Jan	173.17	361	1998	Jan	289.15
122	1978	Feb	178.15	362	1998	Feb	297.49
123	1978	Mar	183.66	363	1998	Mar	295.94
124	1978	Apr	175.27	364	1998	Apr	308.29
125	1978	May	176.30	365	1998	May	299.10
126	1978	Jun	183.75	366	1998	Jun	292.32
127	1978	Jul	188.72	367	1998	Jul	292.87
128	1978	Aug	206.30	368	1998	Aug	284.11
129	1978	Sep	212.07	369	1998	Sep	288.98
130	1978	Oct	227.39	370	1998	Oct	296.22
131	1978	Nov	206.07	371	1998	Nov	294.77
132	1978	Dec	207.83	372	1998	Dec	291.62
133	1979	Jan	227.27	373	1999	Jan	987.07
134	1979	Feb	243.67	374	1999	Feb	287.22
135	1979	Mar	242.04	375	1999	Mar	289.96
136	1979	Apr	239.16	376	1999	Apr	282.62
137	1979	May	257.61	377	1999	May	276.88
138	1979	Jun	279.06	378	1999	Jun	261.37
139	1979	Jul	294.73	379	1999	Jul	256.08
140	1979	Aug	300.81	380	1999	Aug	256.70
141	1979	Sep	355.11	381	1999	Sep	266.60
142	1979	Oct	391.65	382	1999	Oct	310.72
143	1979	Nov	391.99	383	1999	Nov	293.01
144	1979	Dec	455.08	384	1999	Dec	282.37
145	1980	Jan	675.30	385	2000	Jan	284.32
146	1980	Feb	655.32	386	2000	Feb	299.94
147	1980	Mar	553.58	387	2000	Mar	286.39
148	1980	Apr	517.41	388	2000	Apr	279.86
149	1980	May	513.82	389	2000	May	275.31
150	1980	Jun	600.71	390	2000	Jun	285.73
151	1980	Jul	644.28	391	2000	Jul	281.55
152	1980	Aug	627.14	392	2000	Aug	274.47
153	1980	Sep	673.62	393	2000	Sep	273.68
154	1980	Oct	661.14	394	2000	Oct	270.00
155	1980	Nov	623.46	395	2000	Nov	266.01
156	1980	Dec	594.92	396	2000	Dec	271.45
157	1981	Jan	557.38	397	2001	Jan	265.49
158	1981	Feb	499.76	398	2001	Feb	261.86
159	1981	Mar	498.76	399	2001	Mar	263.03
160	1981	Apr	495.80	400	2001	Apr	260.48
161	1981	May	479.69	401	2001	May	272.35
162	1981	Jun	464.76	402	2001	Jun	270.23
163	1981	Jul	409.28	403	2001	Jul	267.53
164	1981	Aug	410.15	404	2001	Aug	272.39
165	1981	Sep	443.58	405	2001	Sep	283.42
166	1981	Oct	437.75	406	2001	Oct	283.06
167	1981	Nov	413.36	407	2001	Nov	276.15
168	1981	Dec	410.09	408	2002	Dec	275.85
169	1982	Jan	384.38	409	2002	Jan	281.65
170	1982	Feb	374.13	410	2002	Feb	295.50
171	1982	Mar	330.04	411	2002	Mar	294.05
172	1982	Apr	350.35	412	2002	Apr	302.64
173	1982	May	333.82	413	2002	May	314.49
174	1982	Jun	314.98	414	2002	Jun	321.18
175	1982	Jul	338.97	415	2002	Jul	313.29
176	1982	Aug	364.23	416	2002	Aug	310.25
177	1982	Sep	435.76	417	2002	Sep	319.16
178	1982	Oct	422.15	418	2002	Oct	316.56
179	1982	Nov	414.91	419	2002	Nov	319.15
180	1982	Dec	444.30	420	2002	Dec	332.43
181	1983	Jan	481,29	421	2003	Jan	356.86
182	1983	Feb	491.96	422	2003	Feb	354.97
183	1983	Mar	419.70	423	2003	Mar	340.55
184	1983	Apr	432.93	424	2003	Apr	328.18
185	1983	May	438.08	425	2003	May	355.68
186	1983	Jun	412.84	426	2003	Jun	356.53
187	1983	Jul	422.72	427	2003	Jul	351.02
188	1983	Aug	416.24	428	2003	Aug	359.77
189	1983	Sep	412.80	429	2003	Sep	378.95
190	1983	Oct	339.58	430	2003	Oct	378.92
191	1983	Nov	381.66	431	2003	Nov	389.91
192	1983	Dec	389.36	432	2003	Dec	407.59
193	1984	Jan	370.90	433	2004	Jan	413.99
194	1984	Feb	386.33	434	2004	Feb	405.33
195	1984	Mar	394.33	435	2004	Mar	406.67
196	1984	Apr	381.36	436	2004	Apr	403.20
197	1984	May	377.40	437	2004	May	383.45
198	1984	Jun	377.67	438	2004	Jun	391.99

199	1984	Jul	347.45	439	2004	Jul	398.09
200	1984	Aug	347.70	440	2004	Aug	400.48
201	1984	Sep	341.09	441	2004	Sep	405.27
202	1984	Oct	340.17	442	2004	Oct	420.46
203	1984	Nov	341.19	443	2004	Nov	439.39
204	1984	Dec	320.14	444	2004	Dec	441.76
205	1985	Jan	302.74	445	2005	Jan	424.15
206	1985	Feb	299.10	446	2005	Feb	423.35
207	1985	Mar	304.17	447	2005	Mar	434.24
208	1985	Apr	324.74	448	2005	Apr	428.93
209	1985	May	316.64	449	2005	May	421.87
210	1985	Jun	316.83	450	2005	Jun	430.66
211	1985	Jul	317.38	451	2005	Jul	424.48
212	1985	Aug	329.33	452	2005	Aug	437.93
213	1985	Sep	324.25	453	2005	Sep	456.04
214	1985	Oct	325.93	454	2005	Oct	469.90
215	1985	Nov	352.22	455	2005	Nov	476.67
216	1985	Dec	320.81	456	2005	Dec	509.76
217	1986	Jan	345.38	457	2006	Jan	549.86
218	1986	Feb	338.89	458	2006	Feb	555.00
219	1986	Mar	345.71	459	2006	Mar	557.09
220	1986	Apr	340.44	460	2006	Apr	610.65
221	1986	May	342.56	461	2006	May	676.51
222	1986	Jun	342.57	462	2006	Jun	596.15
223	1986	Jul	348.54	463	2006	Jul	633.77
224	1986	Aug	376.60	464	2006	Aug	632.59
225	1986	Sep	317.73	465	2006	Sep	598.19
226	1986	Oct	423.51	466	2006	Oct	585.78
227	1986	Nov	398.81	467	2006	Nov	627.83
228	1986	Dec	391.23	468	2006	Dec	629.79
229	1987	Jan	408.26	469	2007	Jan	631.71
230	1987	Feb	401.12	470	2007	Feb	664.75
231	1987	Mar	408.91	471	2007	Mar	654.90
232	1987	Apr	438.35	472	2007	Apr	679.37
233	1987	May	460.23	473	2007	May	666.86
234	1987	Jun	449.59	474	2007	Jun	655.49
235	1987	Jul	450.52	475	2007	Jul	665.30
236	1987	Aug	461.15	476	2007	Aug	665.41
237	1987	Sep	460.20	477	2007	Sep	712.65
238	1987	Oct	465.36	478	2007	Oct	754.60
239	1987	Nov	467.57	479	2007	Nov	806.25
240	1987	Dec	486.31	480	2007	Dec	803.20

To recognize changes in time series graph for this data series are plotted. chart data series to be as follows.
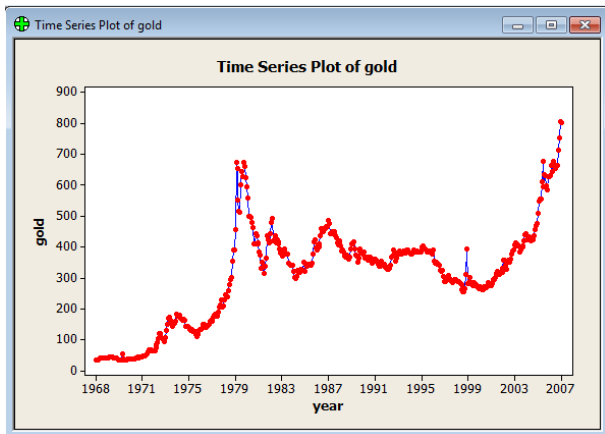
Monthly time series chart of gold price from 1968 to 2007.

preliminary results can be seen in the following diagram realized. the diagram shows that during 1968 and 1972, significant changes occurred in the gold price. during 1973 to 1975, we see the growth of a few tens of dollars. during the years 1976 to 1981, we see the growth of a few hundred dollars. It seems that in both 1982 and 1983, about three hundred dollars suddenly confronted with negative growth and decline. during 1984 the growth and decline during 1987 and 1993, the increase from 1993 to 1996 and 1996 to 2002, faced with declining gold prices. however, between 2002 and 2007 AD by the unprecedented growth of more than 1980 to 1996 have been met. there are certain trends in the data, we are trying to investigate. therefore, the linear model (linear) degree (quadratic) exponential (exponential growth) to fit our data. we have the following three forms. (Jose et al. 1996).
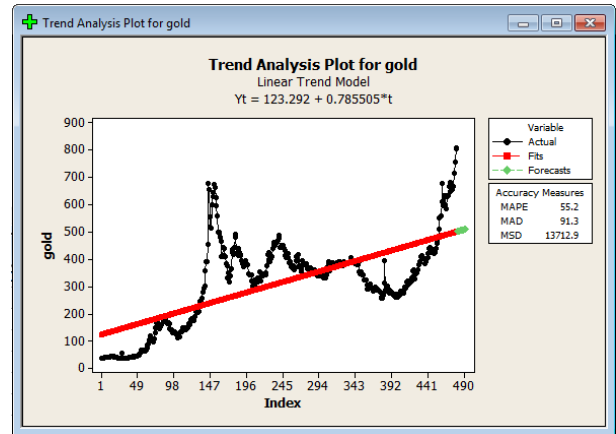
linear process model diagram for the monthly price of gold.
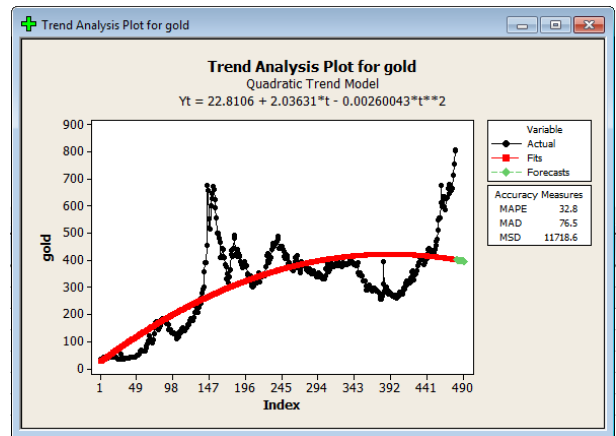
Graph the quadratic model for the monthly price of gold.
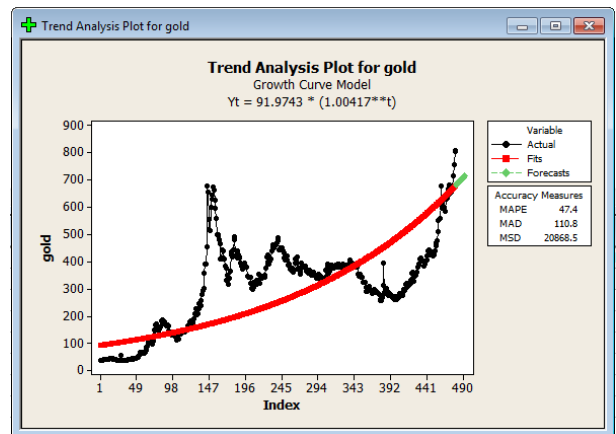
Trend analysis plot for gold.

 view the data model diagram for a monthly price of gold.in the table below we compare the standards of accuracy.

|	MAPE	MAD	MSD
Linear	55.2	91.3	13712.9
Quadratic	32.8	76.5	11718.6
Exponential growth	47.4	110.8	20868.5

According to the results of the standards and precision fitted trend lines, it can be seen that the quadratic model fit the data better Is. therefore, this model is as follows.

γ_t =22.8106+2.03631*t-0.00260043*t**2

Using the model predictions for the next twelve months will be as follows:

```
Forecasts

Period    Forecast
481        400.638
482        400.171
483        399.697
484        399.219
485        398.736
486        398.247
487        397.753
488        397.254
489        396.750
490        396.240
491        395.725
492        395.205
```

To better understand the seasonal changes of charts we use data analysis.
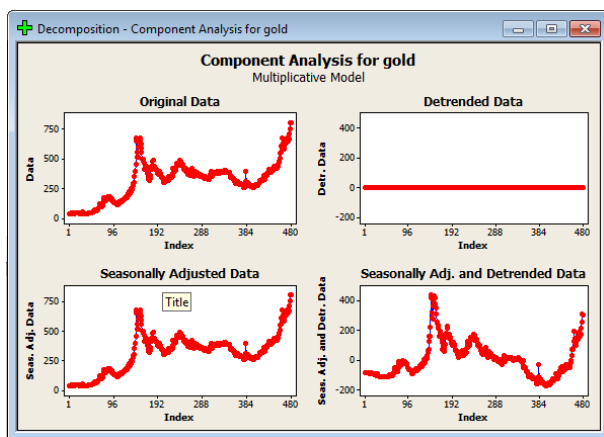
Component analysis for gold

due to the difference between detrended data to create charts and graphs original data in the data, but we because there is no difference between the original data and seasonally adjusted data we infer that the data has seasonal variations are not. using four methods to predict the next twelve months we have.(Yue et al. 2007)

3. Always the moving average method

Detailed submission guidelines can be found on the journal web pages. all authors are responsible for understanding these guidelines before submitting their manuscript.
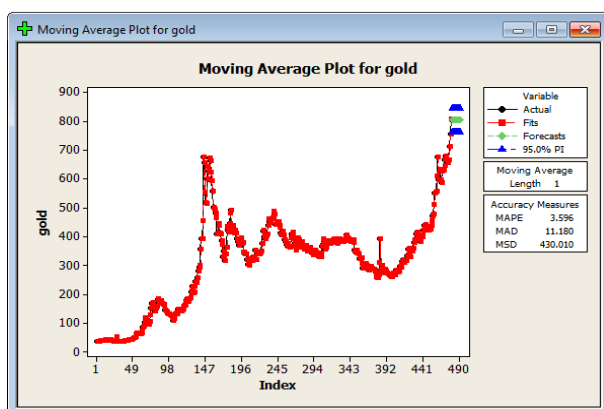
Moving Average monthly gold price chart for data.

4. Method always making view only

One way is always and only looks like the models and linear fit to the data, we can according to precise criteria and the diagram is a good way to check whether or not anticipated.
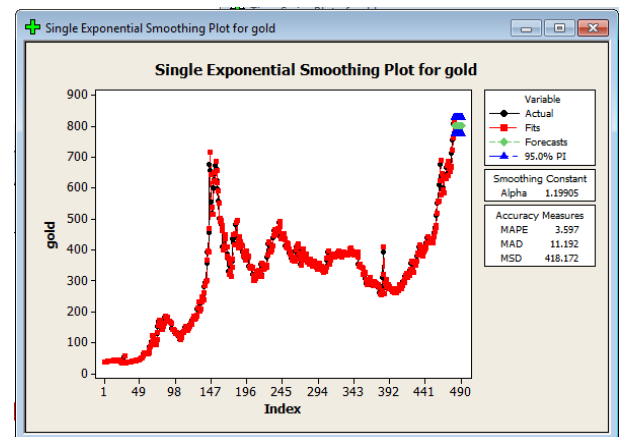
Single exponential smoothing data monthly price chart for gold

5. The method has the double exponential the data are plotted below.
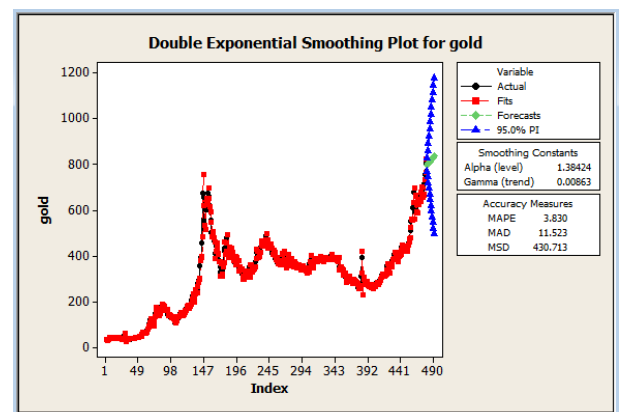
Double exponential smoothing data monthly price chart for gold

6. Winters smoothing data method is as follows
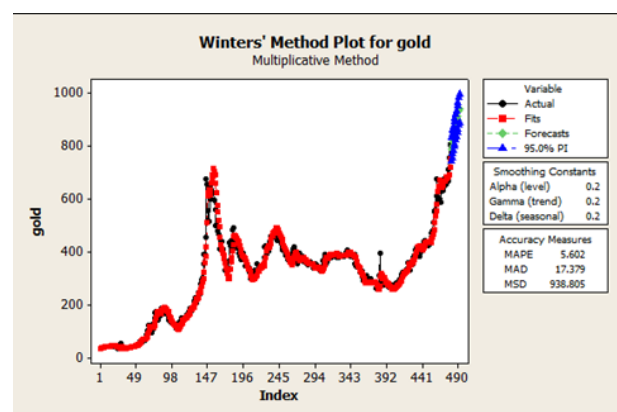
Winters smoothing data monthly price chart for gold.

Below are benchmarks to compare the accuracy of the four methods described above.

	MAPE	MAD	MSD
Single	3.597	11.192	418.172
Double	3.830	11.523	430.713
Winters	5.602	17.397	938.805

This indicates that the method gives a better fit to the data is unique. the predicted values for the following twelve months.

```
Period     Forecast       Lower       Upper
481         800.802     773.384     828.221
482         800.802     773.384     828.221
483         800.802     773.384     828.221
484         800.802     773.384     828.221
485         800.802     773.384     828.221
486         800.802     773.384     828.221
487         800.802     773.384     828.221
488         800.802     773.384     828.221
489         800.802     773.384     828.221
490         800.802     773.384     828.221
491         800.802     773.384     828.221
492         800.802     773.384     828.221
```

7. Diagnostic test model (ARIMA)

As the plot of this series is the series at an average is specified. ACF sample survey also confirms the non-stationary series. as you can see the values of the autocorrelation function are very slow to zero.
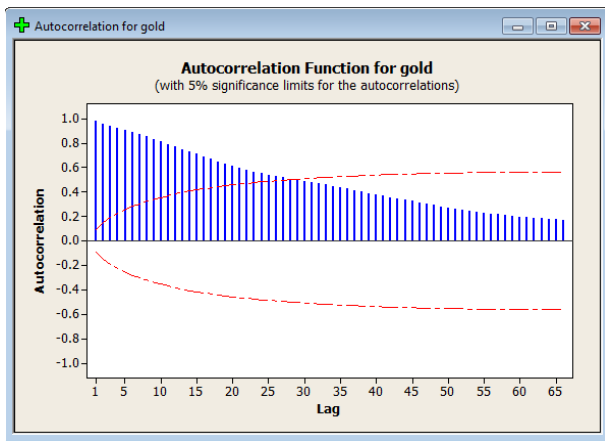
Autocorrelation function for gold.

however, with the implementation of the Box-Cox procedure to examine the stability of the variance.
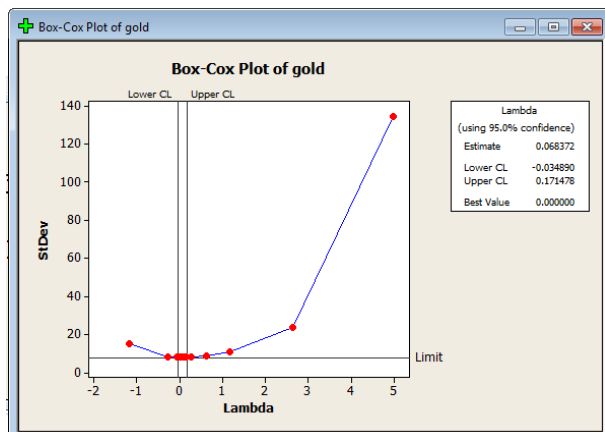
Cox Baks- chart data monthly price for gold.

As number one in the band is not so stable variance to the Box-Cox transformation of the stationary variance was 7.1. after the

conversion, for λ = 1) ln (x_t) we use to do this conversion does not work.
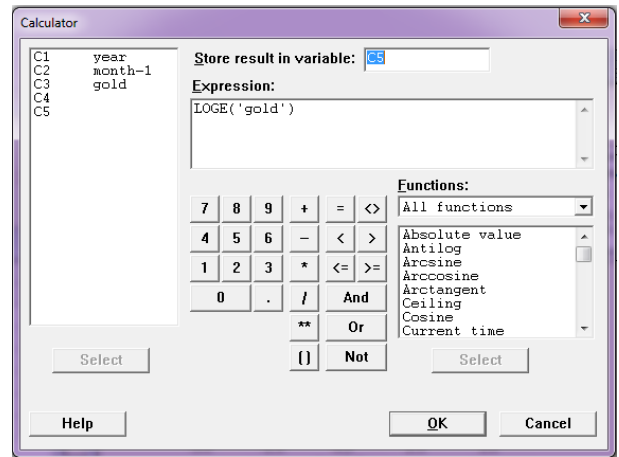
Store results in variable: new data from the conversion are included in this column. expression: change we want to write mathematically by the following box. then click on ok to do the necessary conversions and new data are entered in column C5. Box-Cox plots to ensure the data is plotted to C5.
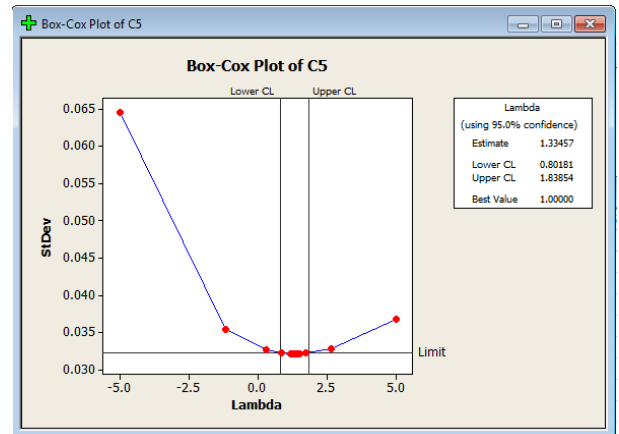
Box-cox plot for gold monthly price data after conversion (after stabilization of variance).

as can be seen, the number one in the band is sure to become the choice is indicated. to solve the problem of non-stationary, the differential time series are given. differential series with C4 show. However, time series graphs are plotted for a series of difference.
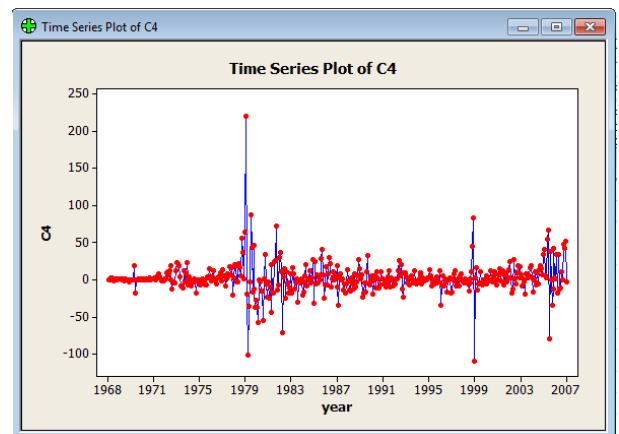
Time-series data monthly price chart for gold after stabilize the variance and differential.

as you can see, the series is the result of a series of stationary time series ARIMA models fitted to a suitable model of these families did.

8. Sample PACF, ACF

To plot the differential series of PACF, ACF important tool in determining the autocorrelation function, partial autocorrelation function is. draw a diagram of the process is helpful in determining the type and level. to identify the best model is recommended that a sample size of at least 50 APCF, ACF delayed at least K = n / 4 are calculated and graphed.

	ACF	PACF
AR(P)	As an exponential decay to zero or a sine wave	After a delay of p is disconnected
MA(q)	Q will be cut off after a delay	As an exponential decay to zero or a sine wave
ARMA(p,q)	After the delay (qp) to zero	After the delay (pq) to zero

9. Autocorrelation plot of static data ACF

an experimental method for determining the degree of MA recognize that given the lags of the autocorrelation curve q = 2 is observed. (lag = 1.8).
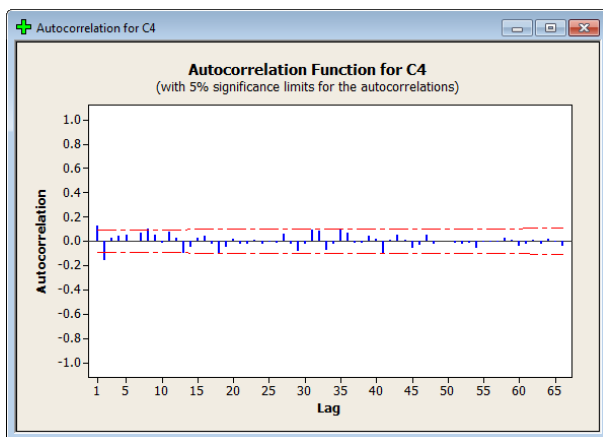
ACF chart data monthly price for gold after stabilize the variance and differential.

10. Partial autocorrelation plot of the static data PACF

An experimental method for determining the degree of AR diagnosis of the partial autocorrelation plot is due to lags P = 2 is observed. (Lag lag = 1.7)
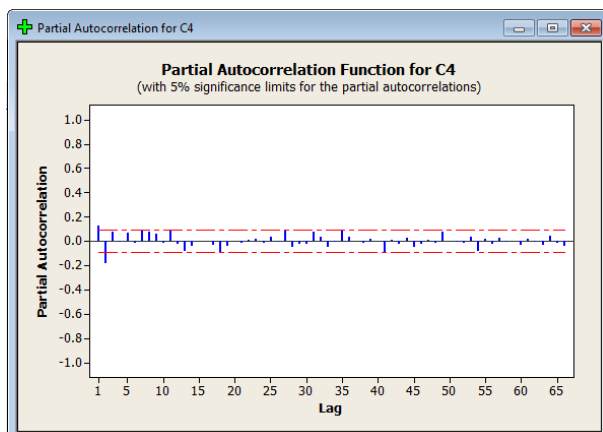
Pacf chart for gold after fixing the variance of monthly price data.

# 11. There is a definite trend in the model test

However, given the above steps and diagrams acf, pacf that goes to zero, the test model ARIMA assume and we argued about it properly.

12. Investigation and analysis on the residuals

If the ARIMA, model are diagnosed, then the residuals of the fit of the model to be approximately has the properties of a normal random variable with mean zero and variance are fixed independently distributed. if no model is appropriate to the remaining structure. this means that should any other variables such as command data collection or estimated values are irrelevant. any structure in these graphs showed the effect on the response variable is.

one way to analyze charts of the remaining residues are examined. ARIMA for the main window by selecting the desired graphs can offer.
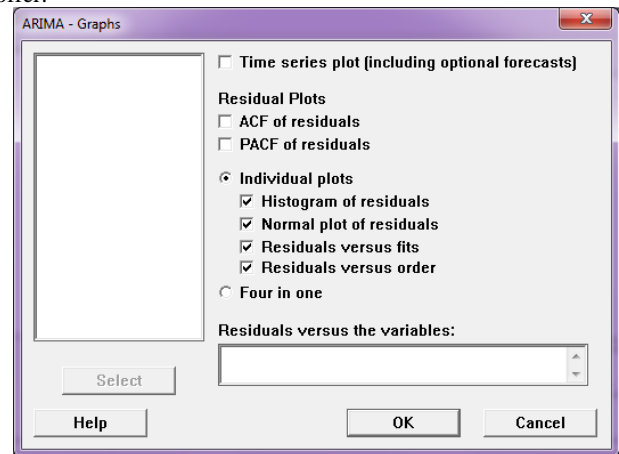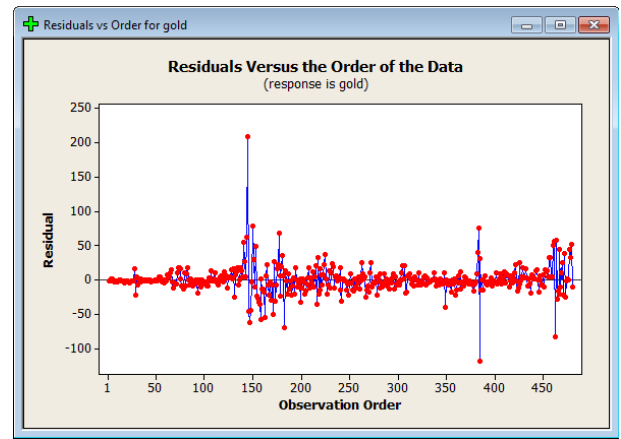

thus, under the assumption of normality of the residuals charts to confirm.
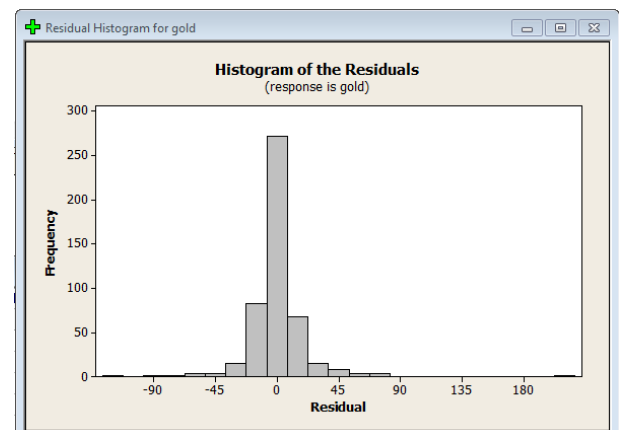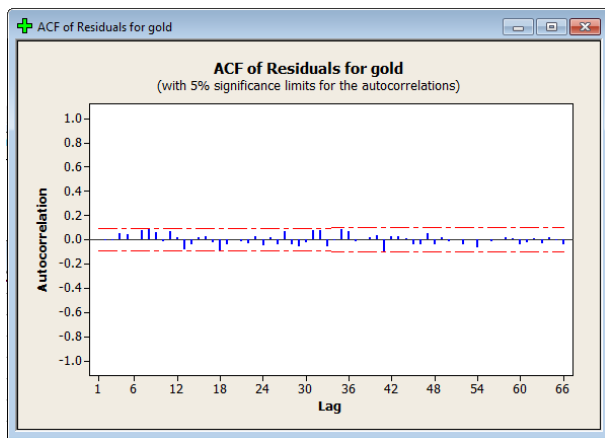

histograms of the residuals for the monthly price of gold.

Normal Probability Plot of the Residuals
(response is gold)
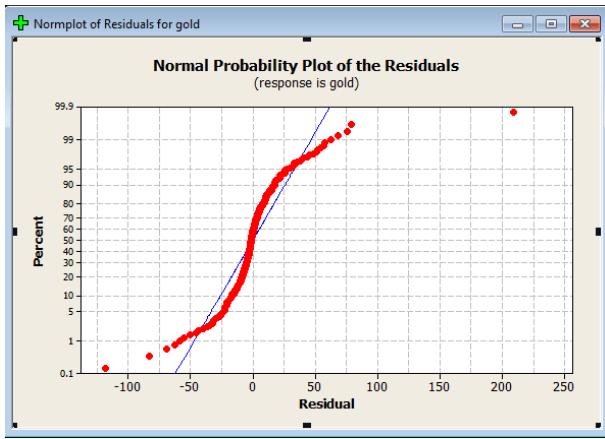
Linden possibility remained normal for the monthly price of gold. Graphs ACF, PACF below do not show specific plans and delays are not significantly different from zero. thus, assuming independence of residuals will be accepted.
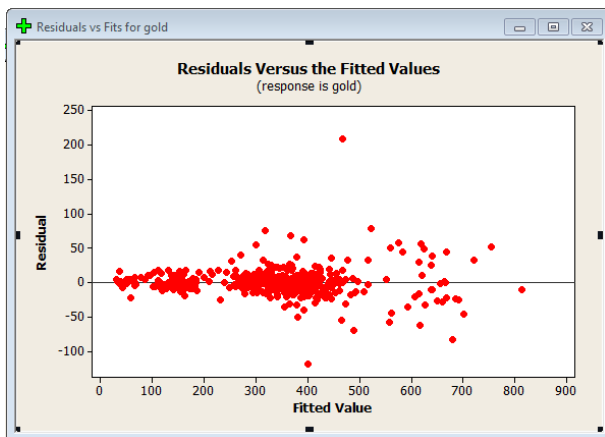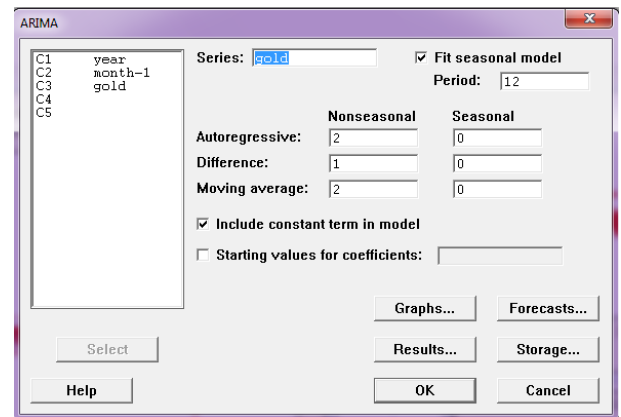

ACF remaining data monthly price chart for gold.

Residual versus the fitted values.

plot of residuals against fitted values for the monthly price of gold. the remaining charts at the same time against accidental impacts resulting from the process are pure chaos.

Residual versus the order of the data.

Residuals vs time data monthly price chart for gold.
based on the above information, we fit the ARIMA model.

13.   ARIMA model

So far we have q and p degrees from the ACF and PACF plot recognize that it is not necessarily a reason Just estimated. you can select the best type of trial and error. note that for the the time difference d = 1 we take it in the ARIMA model under review: ARIMA (p, d, q) = ARIMA (2,1,2) To fit this model ARIMA window will fill in the form below.

As you can see from the output port- mantoux test is as follows.

```
Final Estimates of Parameters

Type          Coef   SE Coef      T       P
AR   1     -0.2124    0.5827   -0.36   0.716
AR   2      0.0559    0.3718    0.15   0.881
MA   1     -0.3785    0.5788   -0.65   0.513
MA   2      0.1942    0.4642    0.42   0.676
Constant    1.837     1.093     1.68   0.093


Differencing: 1 regular difference
Number of observations:  Original series 480, after differencing 479
Residuals:    SS =  193206 (backforecasts excluded)
              MS =   408  DF = 474


Modified Box-Pierce (Ljung-Box) Chi-Square statistic

Lag              12       24       36       48
Chi-Square     12.2     24.1     43.0     53.7
DF                7       19       31       43
P-Value       0.094    0.194    0.074    0.128
```

As you can see the amount of P-Value is greater than 0.05 for all the delays. also we see the P-Value for delays of 12, 24, 36, and 48 more. so it can be defragmented hypothesis remains closed to admit. so it can be confirmed on the model.

14.   Conclusion

Now, using the Box-Jencks, ARIMA modeling strategies to identify, we can make it on the Sri projected average monthly price of gold on the London market in 1968, and 2007 put. In this issue, we set the values for twelve months. we expect the average monthly price of gold. to do this, open another window and ARIMA model, ARIMA (3, 1) it will fit. then click on the option forecasts at the bottom of the window and the window opened at a number of 12, we entered the lead. origin box to specify the starting point forecast. if this is something to write predictions of the end of the series will be produced. storage can be predicted values and the predictions of the store. the forecast for the next twelve months will be using this model as follows:

		95 Percent Limits		
Period	Forecast	Lower	Upper	Actual
481	797.478	757.875	837.080	
482	802.641	741.981	863.302	
483	805.868	733.582	878.154	
484	806.476	723.830	889.121	
485	807.873	715.189	900.557	
486	809.755	708.163	911.347	
487	811.360	701.718	921.003	
488	812.889	695.694	930.084	
489	814.495	690.183	938.808	
490	816.108	685.079	947.138	
491	817.701	680.286	955.116	
492	819.295	675.774	962.817	

To view the predicted values in the graph in the main, window ARIMA time series is adequate on option's graphs button and the window was opened, which is the first option time series plot (including optional forecasts) choose. and so the plot time series forecasting in the following twelve months.
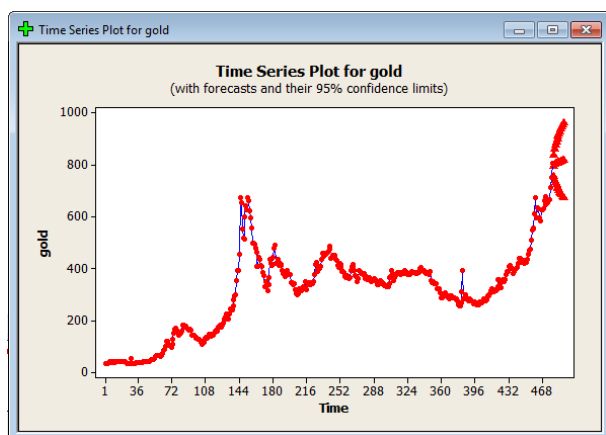
Time series plot for gold.

Series of monthly gold price forecast based on ARIMA (3, 1, and 0).

In the diagram above and below the center line of the predicted values and the upper limit and lower limit of the confidence interval 0.05 CI 0.05 to predict anticipated shows.

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