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The SAS System

The AUTOREG Procedure

Dependent Variable	return
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## The SAS System

### The AUTOREG Procedure

Ordinary Least Squares Estimates			
<b>SSE</b>	0.64491032	<b>DFE</b>	1509
<b>MSE</b>	0.0004274	<b>Root MSE</b>	0.02067
<b>SBC</b>	-7422.8343	<b>AIC</b>	-7428.1541
<b>MAE</b>	0.01447432	<b>AICC</b>	-7428.1515
<b>MAPE</b>	115.633514	<b>HQC</b>	-7426.1729
<b>Durbin-Watson</b>	2.2221	<b>Total R-Square</b>	0.0000

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr >  t
<b>Intercept</b>	1	0.001001	0.000532	1.88	0.0600

Algorithm converged.

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**The SAS System**
**The AUTOREG Procedure**

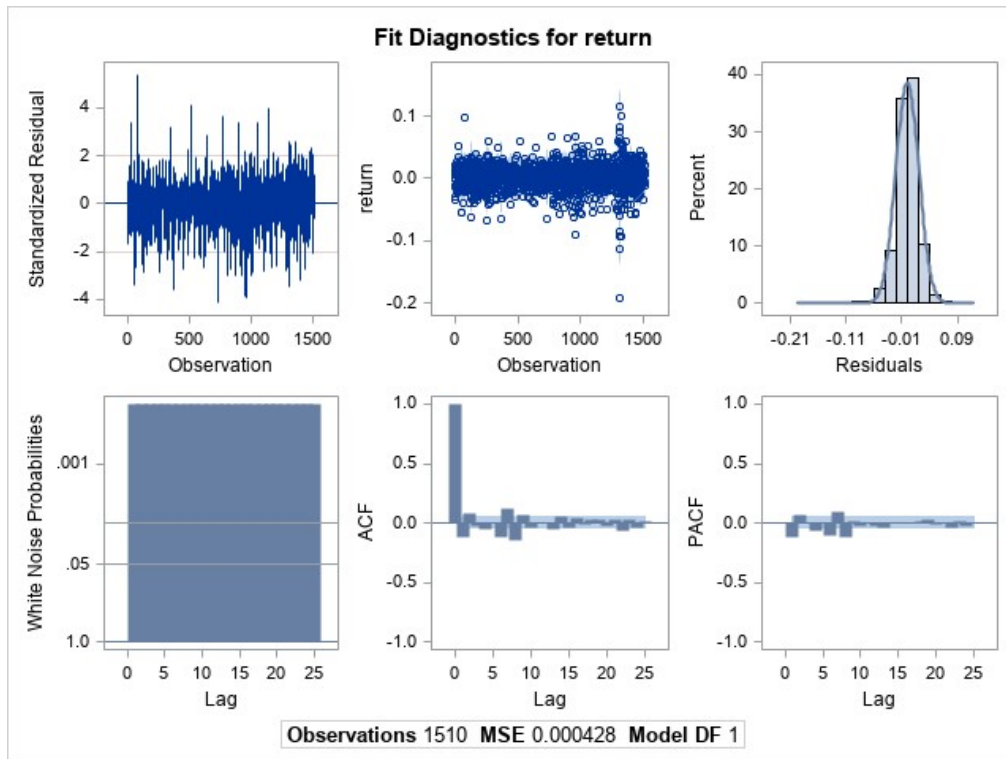
GARCH Estimates			
<b>SSE</b>	0.64491247	<b>Observations</b>	1510
<b>MSE</b>	0.0004271	<b>Uncond Var</b>	0.00038129
<b>Log Likelihood</b>	3874.79681	<b>Total R-Square</b>	.
<b>SBC</b>	-7720.3142	<b>AIC</b>	-7741.5936
<b>MAE</b>	0.01447292	<b>AICC</b>	-7741.567
<b>MAPE</b>	116.373172	<b>HQC</b>	-7733.6689
		<b>Normality Test</b>	234.0502
		<b>Pr &gt; ChiSq</b>	<.0001

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr >  t
<b>Intercept</b>	1	0.001039	0.000454	2.29	0.0221
<b>ARCH0</b>	1	0.0000371	7.0076E-6	5.30	<.0001
<b>ARCH1</b>	1	0.1273	0.0184	6.93	<.0001
<b>GARCH1</b>	1	0.7753	0.0318	24.38	<.0001

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Ordinary Least Squares Estimates			
<b>SSE</b>	0.64491032	<b>DFE</b>	1509
<b>MSE</b>	0.0004274	<b>Root MSE</b>	0.02067
<b>SBC</b>	-7422.8343	<b>AIC</b>	-7428.1541
<b>MAE</b>	0.01447432	<b>AICC</b>	-7428.1515
<b>MAPE</b>	115.633514	<b>HQC</b>	-7426.1729
<b>Durbin-Watson</b>	2.2221	<b>Total R-Square</b>	0.0000

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr >  t
<b>Intercept</b>	1	0.001001	0.000532	1.88	0.0600

ERROR: Convergence not attained in 50 iterations. Interpret the estimates with care.

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**The SAS System**
**The AUTOREG Procedure**

GARCH Estimates			
<b>SSE</b>	0.64491038	<b>Observations</b>	1510
<b>MSE</b>	0.0004271	<b>Uncond Var</b>	0.00042435
<b>Log Likelihood</b>	3721.95167	<b>Total R-Square</b>	.
<b>SBC</b>	-7429.2636	<b>AIC</b>	-7439.9033
<b>MAE</b>	0.01447408	<b>AICC</b>	-7439.8954
<b>MAPE</b>	115.756413	<b>HQC</b>	-7435.941
		<b>Normality Test</b>	3427.6332
		<b>Pr &gt; ChiSq</b>	<.0001

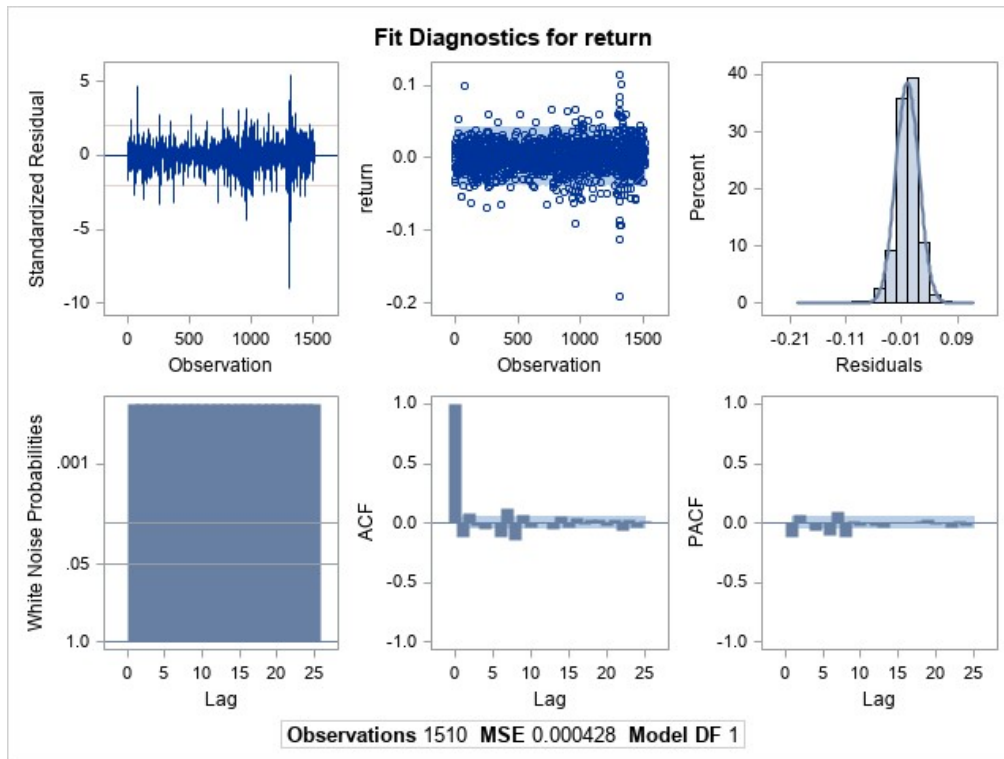
Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr >  t
<b>Intercept</b>	1	0.001008	0.000562	1.79	0.0730
<b>ARCH0</b>	1	0.000423	0.000375	1.13	0.2597
<b>ARCH1</b>	1	0.001743	0.002129	0.82	0.4129
<b>ARCH2</b>	1	0.002134	0.002271	0.94	0.3473
<b>GARCH1</b>	1	2.27E-16	1.0136	0.00	1.0000
<b>GARCH2</b>	1	1.1013E-6	0.4369	0.00	1.0000



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### The AUTOREG Procedure

Ordinary Least Squares Estimates			
<b>SSE</b>	0.64491032	<b>DFE</b>	1509
<b>MSE</b>	0.0004274	<b>Root MSE</b>	0.02067
<b>SBC</b>	-7422.8343	<b>AIC</b>	-7428.1541
<b>MAE</b>	0.01447432	<b>AICC</b>	-7428.1515
<b>MAPE</b>	115.633514	<b>HQC</b>	-7426.1729
<b>Durbin-Watson</b>	2.2221	<b>Total R-Square</b>	0.0000

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr >  t
<b>Intercept</b>	1	0.001001	0.000532	1.88	0.0600

ERROR: Convergence not attained in 50 iterations. Interpret the estimates with care.

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**The SAS System**
**The AUTOREG Procedure**

GARCH Estimates			
<b>SSE</b>	0.64491081	<b>Observations</b>	1510
<b>MSE</b>	0.0004271	<b>Uncond Var</b>	0.0004204
<b>Log Likelihood</b>	3879.09145	<b>Total R-Square</b>	.
<b>SBC</b>	-7721.5836	<b>AIC</b>	-7748.1829
<b>MAE</b>	0.01447365	<b>AICC</b>	-7748.143
<b>MAPE</b>	115.986391	<b>HQC</b>	-7738.277
		<b>Normality Test</b>	219.8593
		<b>Pr &gt; ChiSq</b>	<.0001

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr >  t
<b>Intercept</b>	1	0.001019	0.000458	2.23	0.0259
<b>ARCH0</b>	1	0.0000791	0.0000174	4.56	<.0001
<b>ARCH1</b>	1	0.1865	0.0291	6.40	<.0001
<b>ARCH2</b>	1	0.1089	0.0313	3.48	0.0005
<b>ARCH3</b>	1	0.0258	0.0319	0.81	0.4196
<b>GARCH1</b>	1	-0.1318	0.0794	-1.66	0.0972
<b>GARCH2</b>	1	0.0140	0.0743	0.19	0.8508
<b>GARCH3</b>	1	0.6085	0.0641	9.49	<.0001

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