

*Research article*

# Forecasting green financial innovation and its implications for financial performance in Ethiopian Financial Institutions: Evidence from ARIMA and ARDL model

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## Supplementary

**Appendix Table A.1.** Stationary and Collerogram test for green financial innovation before differencing.

Null Hypothesis: INNOVATION has a unit root; Exogenous: Constant

Lag Length: 0 (Automatic-based on SIC, maxlag=6)

Augmented Dickey-Fuller test statistic	t-Statistic	Prob.*
	-5.205092	0.0002
Test critical values:	1% level	-3.699871
	5% level	-2.976263
	10% level	-2.627420

Included observations: 28

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
.  *****	.  *****	1	0.833	0.833	21.571	0.000

*Continued on next page*

Included observations: 28

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
.  *****	.   .	2	0.687	-0.022	36.805	0.000
.  ****	.   .	3	0.561	-0.016	47.384	0.000
.  ***	.   .	4	0.455	-0.011	54.624	0.000
.  ***	.   .	5	0.366	-0.007	59.518	0.000
.  **	.   .	6	0.292	-0.006	62.784	0.000
.  **	.   .	7	0.231	-0.008	64.915	0.000
.  *	.   .	8	0.177	-0.015	66.233	0.000
.  *	. *  .	9	0.110	-0.083	66.764	0.000
.   .	.   .	10	0.043	-0.051	66.852	0.000
.   .	.   .	11	-0.021	-0.054	66.873	0.000
. *  .	.   .	12	-0.082	-0.056	67.224	0.000

**Appendix Table B.1.** Stationary and Collerogram test for green financial innovation after differencing.

Null Hypothesis: D(INNOVATION) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic-based on SIC, maxlag=6)

Augmented Dickey-Fuller test statistic	t-Statistic	Prob.*
	-3.055018	0.0429
Test critical values:	1% level	-3.711457
	5% level	-2.981038
	10% level	-2.629906

**Appendix Table C.1.** Auto correlation or white noise test of the forecasted model.

Included observations: 27

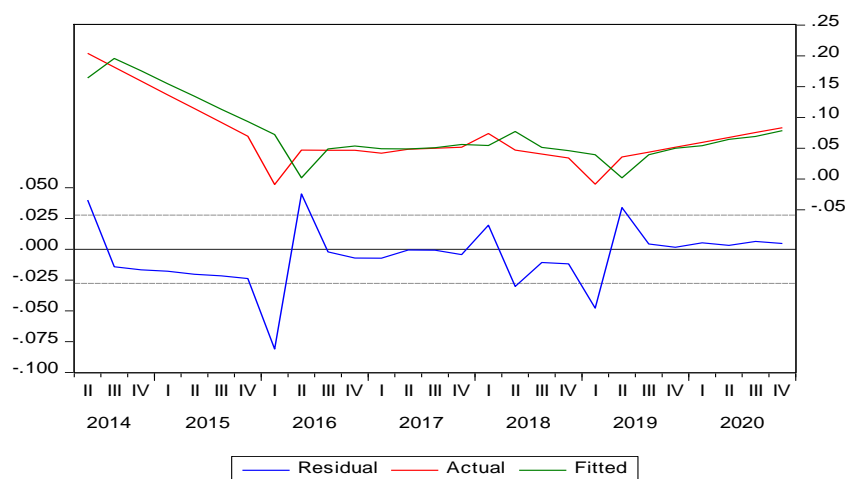
Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
.  **	.  **	1	0.227	0.227	1.5507	0.213
. *  .	. *  .	2	-0.111	-0.171	1.9364	0.380
. *  .	.   .	3	-0.088	-0.022	2.1913	0.534
. *  .	. *  .	4	-0.115	-0.115	2.6449	0.619
. *  .	. *  .	5	-0.166	-0.138	3.6264	0.604
. *  .	. *  .	6	-0.189	-0.167	4.9542	0.550
.   .	.   .	7	0.015	0.045	4.9632	0.664
.   .	.   .	8	0.041	-0.059	5.0341	0.754
.   .	.   .	9	0.040	0.004	5.1026	0.825
. *  .	. *  .	10	-0.070	-0.152	5.3272	0.868
.   .	.   .	11	0.028	0.046	5.3655	0.912
.  **	.  **	12	0.274	0.236	9.2959	0.677

**Appendix Table D.1.** Summary of Hedge Effectiveness research.

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INNOVATION	0.145662	0.307630	0.473497	0.6407
C	0.713843	3.532643	0.202071	0.8418
EC = ROA-(0.1457*INNOVATION + 0.7138)				

**Appendix Table E.1.** Model diagnostic test result of ARDL Model.

Ramsey RESET Test				
Equation: UNTITLED				
Specification: ROA ROA (-1) ROA (-2) INNOVATION INNOVATION (-1) C				
Omitted Variables: Squares of fitted values				
	Value	df	Probability	
t-statistic	0.925061	20	0.3660	
F-statistic	0.855738	(1, 20)	0.3660	
Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	0.106721	Prob. F (2,19)	0.8993	
Obs*R-squared	0.288835	Prob. Chi-Square (2)	0.8655	
Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	1.108405	Prob. F (4,21)	0.3788	
Obs*R-squared	4.532353	Prob. Chi-Square (4)	0.3387	
Scaled explained SS	6.721985	Prob. Chi-Square (4)	0.1513	

**Appendix Figure A.1:** Residuals of autocorrelations.

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