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*Research article*

## **Inflation Targeting, Economic Growth and Financial Stability: Evidence from Emerging Countries**

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### **Supplementary**

#### **Appendix 1**

**Table A1.** Definition of the indicators used in the construction of the financial stability index.

Indicators	Definitions
Banking spread	This indicator is measured by the difference between the credit interest rate and the lending interest rate.
Domestic credit to private sector (% GDP)	It is the total financial resources provided to the private sector by financial companies. This indicator reflects information about the level of banking intermediation in the system.
Stock Market capitalization (% GDP)	Reflects the total value of all publicly traded stocks as a percentage of GDP. In addition, market capitalization (also called market value) is the share current market price multiplied by the number of outstanding shares (including their different classes) for domestic listed companies.
Inflation rate	Measured by the Consumer Price Index. Indeed, the observed level of inflation reflects the strategy of economic policies. Admittedly, a controlled price level boosts investor confidence.

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Budgetary Balance (% GDP)	Calculated as the difference between government revenue and expenditure as a percentage of GDP. This indicator provides information on the state's budgetary situation (budget deficit/surplus). In other words, when an economy is in a situation of increased budget deficit, this will have a negative impact on investor confidence and sustainable growth.
Bank loans/deposits	Provides a signal about the possibility of a financial crisis. This indicator shows that a high level of credit that exceeds the level of deposits generates a potential imbalance that could threaten the stability of the financial system.
Real GDP per capita growth rate	It is the gross domestic product in relation to the population. In addition, it is the sum of the gross value added of all resident producers in a country plus taxes on products and minus subsidies not included in the value of products. This indicator reflects the state of production in an economy.
Non-performing loans (NPLs)	It represents the credit quality of the banks. In addition, it is the ratio of bad debts to total credit. Bad debt has been expanding rapidly worldwide as a result of the credit boom and competition between banks. Nevertheless, this indicator has fallen considerably following the onset of the subprime crisis.
Equity /Total assets	This ratio reflects the level of capitalization of an economy's banking system.
Z-score	Represents the degree of insolvency of banks. In addition, the higher the Z-score, the closer the bank is to the insolvency threshold and vice versa.
Bank liquid reserves /bank assets	Reflects the share of deposits and domestic currency to monetary authorities in relation to claims on non-financial public enterprises, other banking institutions, and the private sector.
Control of Corruption	The aim is to measure the abuse of power of public authorities for personal gains as well as the misappropriation of state property by elites.
Government Effectiveness	Measures the quality and performance of public services, as well as the quality and credibility of policy follow-up.
Political stability and absence of violence/terrorism	Measures the likelihood of the occurrence of violence against government, specifically their toppling by violent means, including terrorism.
Regulatory Quality	Measures the potential for government to develop regulations and policies that benefit the private sector.
Rule of Law	Measures the quality of a society's design of rules, including the competence of the courts and the police, the degree of violence and crime. This indicator thus measures citizens' confidence in the implementation of these rules.
Voice and accountability	Measures human, civil, and political rights and how citizens participate in government elections.

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## Appendix 2

**Table A2.** The set of factor coordinates of the variables of the sub-indices and the global index.

Financial Development Index (First sub index)						
Variable	Comp1	Comp2	Comp3	-	-	-
Zsb	-.3431	.9360	.0787	-	-	-
Zdcps	.6723	.1862	.7165	-	-	-
Zmc	.6560	.2988	-.6931	-	-	-
Economic Vulnerability Index (Second sub index)						
Variable	Comp1	Comp2	Comp3	Comp4	-	-
Zinf	-.5251	.5185	-.4051	.5397	-	-
Zbcbd	-.3911	.2106	.8917	.0865	-	-
Zsbud	.7119	.2124	.2001	.6388	-	-
Zgdp_pcg	.2540	.8011	-.0252	-.5414	-	-
Financial Solidity Index (Third sub index)						
Variable	Comp1	Comp2	Comp3	Comp4	-	-
Znpl	.1679	-.8038	-.1548	.5493	-	-
Zbcta	.4764	.5077	-.5695	.4369	-	-
Zlrba	.5738	.1298	.7744	.2328	-	-
Zscore	-.6446	.2815	.2281	.6732	-	-
World Government Index (Fourth sub index)						
Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
Zcc	.4491	-.1656	.4464	.2733	-.5420	.4508
Zge	.4332	-.1362	-.3626	.6363	.4990	.0917
Zpsavt	.4184	-.0298	-.5390	-.6078	-.0616	.4003
Zrq	.4907	.1275	-.1580	.0131	-.3840	-.7553
Zrl	.4208	-.1060	.5872	-.3811	.5464	.1517
Zva	.1329	.9621	.0944	.0746	.0865	.1863
Financial Stability Index (Overall index)						
Variable	Comp1	Comp2	Comp3	Comp4	-	-
FDI	.6834	.1706	.2449	.6663	-	-
FVI	.4394	-.5733	.4930	-.4850	-	-
FSTI	-.5812	-.2930	.6151	.4450	-	-
WGI	-.0469	.7459	.5646	-.3503	-	-

## Appendix 3

### Panel VAR

#### Step 1: Choosing the optimal number of lags

#### Targeting countries

The order of the panel VAR model corresponds to the minimum value of the information criteria. Therefore, for the two groups of inflation-targeting and non-targeting countries, we use a Lag\* = 1 which minimizes the information criteria for the considered two panels.

**Table A3.** Running panel VAR lag order selection on estimation sample (PVAR<sub>1</sub>).

<i>Lag</i>	<i>CD</i>	<i>J</i>	<i>J Pvalue</i>	<i>MBIC</i>	<i>MAIC</i>	<i>MQIC</i>
1	.9534496	42.1688	0000312	-27.84893	18.1688	-.1634007
2	.9574204	21.07208	.0069584	-25.6064	5.072082	-7.149387
3	.8018402	13.69788	.0083244	-9.641358	5.697885	-.4128498

No. of obs = 342; No. of panels = 19; Ave. no. of T = 18.000

**Table A4.** Running panel VAR lag order selection on estimation sample (PVAR<sub>2</sub>).

<i>Lag</i>	<i>CD</i>	<i>J</i>	<i>J Pvalue</i>	<i>MBIC</i>	<i>MAIC</i>	<i>MQIC</i>
1	.9951894	22.13924	.0359886	-47.87849	-1.860764	-20.19297
2	.9931642	9.061693	.3371184	-37.61679	-6.938307	-19.15978
3	.9717134	6.12601	.1899333	-17.21323	-1.87399	-7.984725

No. of obs = 342; No. of panels = 19; Ave. no. of T = 18.000

#### Non-targeting countries

**Table A5.** Running panel VAR lag order selection on estimation sample (PVAR<sub>1</sub>).

<i>Lag</i>	<i>CD</i>	<i>J</i>	<i>J Pvalue</i>	<i>MBIC</i>	<i>MAIC</i>	<i>MQIC</i>
1	.7934728	25.65562	.012004	-42.2999	1.655624	-15.9591
2	.7211953	11.84023	.158476	-33.46345	-4.15977	-15.90292
3	.4810509	8.116358	.0874076	-14.53548	.1163583	-5.755216

No. of obs = 288; No. of panels = 16; Ave. no. of T = 18.000

**Table A6.** Running panel VAR lag order selection on estimation sample (PVAR<sub>2</sub>).

<i>Lag</i>	<i>CD</i>	<i>J</i>	<i>J Pvalue</i>	<i>MBIC</i>	<i>MAIC</i>	<i>MQIC</i>
1	.9849073	12.0761	.4395877	-55.87943	-11.9239	-29.53863
2	.9744746	10.74794	.2163943	-34.55574	-5.252059	-16.99521
3	.9275322	10.40406	.0341446	-12.24779	2.404056	-3.467518

No. of obs = 288; No. of panels = 16; Ave. no. of T = 18.000

**Step 2: Estimation of the PVAR model**

**Targeting countries**

The PVAR model estimated using the GMM method implies that the coefficient of the lagged term of order 1 is statistically significant. Specifically, there is a negative and a statistically significant relationship between inflation and economic growth at the 1% threshold for the targeting countries. On the other hand, there is a positive and a statistically significant relationship between inflation and financial stability at the 1% threshold for these countries.

**Table A7.** Estimation of the Panel VAR1 model.

Final GMM Criterion  $Q(b) = .083$

Initial weight matrix: Identity

GMM weight matrix: Robust

		<i>Coef</i>	<i>Std.err</i>	<i>Z</i>	<i>P&gt;Z</i>	<i>[95% Conf. Interval]</i>
<b>gdp_pcg</b>						
	<b>gdp_pcg</b>					
	L1	.3725814	.0678224	5.49	0.000	.2396519 .5055109
	<b>Inf</b>					
	L1	-.0225686	.0086928	-2.60	0.009	-.0396061 -.0055311
<b>inf</b>						
	<b>Gdp_pcg</b>					
	L1	-.3661734	.2153922	-1.70	0.089	-.7883343 .0559875
	<b>Inf</b>					
	L1	.6233465	.0396737	15.71	0.000	.5455874 .7011056

Instruments :  $l(1/4).(gdp\_pcg\ inf)$

panel VAR-Granger causality Wald test

Ho: Excluded variable does not Granger-cause Equation variable

Ha: Excluded variable Granger-causes Equation variable

No. of obs = 399; No. of panels = 19; Ave. no. of T = 21.000

**Table A8.** Estimation of the Panel VAR2 model.

Final GMM Criterion Q(b) = .041

Initial weight matrix: Identity

GMM weight matrix: Robust

		<i>Coef</i>	<i>Std.err</i>	<i>Z</i>	<i>P&gt;Z</i>	<i>[95% Conf. Interval]</i>
FSI						
	FSI					
	L1	.8432804	.1833968	4.60	0.000	.4838293 1.202732
Inf						
	L1	.0103848	.0036571	2.84	0.005	0032171 .0175526
Inf						
	FSI					
	L1	-3.364861	1.363139	-2.47	0.014	-6.036565 -.6931573
Inf						
	L1	.3877435	.073256	5.29	0.000	2441644 .5313227

No. of obs = 399; No. of panels = 19; Ave. no. of T = 21.000

**Non-targeting countries**

The PVAR model estimated using the GMM method implies that the coefficient of the lagged term of order 1 is statistically significant. Specifically, there is a positive and a statistically significant relationship at the 10% threshold between inflation and financial stability for non-targeting countries.

**Table A9.** Estimation du modèle Panel VAR1.

Final GMM Criterion Q(b) = .0872

Initial weight matrix: Identity

GMM weight matrix: Robust

		<i>Coef</i>	<i>Std.err</i>	<i>Z</i>	<i>P&gt;Z</i>	<i>[95% Conf. Interval]</i>
Gdp_pcg						
	Gdp_pcg					
	L1	.5831277	.1319657	4.42	0.000	.3244796 .8417758
Inf						
	L1	.0064829	.0060298	1.08	0.282	-.0053354 .0183012
Inf						
	Gdp_pcg					
	L1	1.177976	.648129	1.82	0.069	-.0923336 2.448285
Inf						
	L1	.4411361	.0788007	5.60	0.000	.2866896 .5955826

No. of obs = 366; No. of panels = 16; Ave. no. of T = 21.000

**Table A10.** Estimation du modèle Panel VAR2.Final GMM Criterion  $Q(b) = .0423$ 

Initial weight matrix: Identity

GMM weight matrix: Robust

		<i>Coef</i>	<i>Std.err</i>	<i>Z</i>	<i>P&gt;Z</i>	<i>[95% Conf. Interval]</i>
FSI						
	FSI					
	L1	.7427345	.0814191	9.12	0.000	.583156 .9023129
	Inf					
	L1	.0040453	.002392	1.69	0.091	-.0006429 .0087336
		<i>Coef</i>	<i>Std.err</i>	<i>z</i>	<i>P&gt;Z</i>	<i>[95% Conf. Interval]</i>
Inf						
	FSI					
	L1	-9.870522	4.376436	-2.26	0.024	-18.44818 -1.292866
	Inf					
	L1	.2759806	.1503865	1.84	0.066	-.0187715 .5707327

No. of obs = 366; No. of panels = 16; Ave. no. of T = 21.000

*Step 3: Checking the stability of the Panel VAR model**Targeting countries*

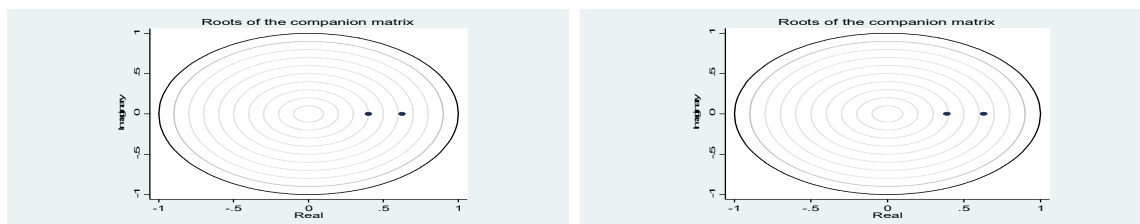
Checking the stability of the previously estimated Panel VAR model is carried out by observing the inverse of the roots associated with the AR portion of each of the variables. In Tables A11 and A12, the Panel VAR is stationary and stable insofar as we observe that all the roots in module are less than one, and belong to the unit disk of both PVARs. (Figure A1)

**Table A11.** PVAR1 Eigenvalue stability condition.

<i>Eigenvalue</i>		<i>Modulus</i>
<i>Real</i>	<i>Imaginary</i>	
.6528343	0	.6528343
.3430937	0	.3430937

**Table A12.** PVAR2 Eigenvalue stability condition.

<i>Eigenvalue</i>		<i>Modulus</i>
<i>Real</i>	<i>Imaginary</i>	
.7456462	0	.7456462
.4853777	0	.4853777

**Figure A1.** Stability of the Panel VAR : Roots of the companion matrix.(1) *PVAR1*(2) *PVAR2***Non-targeting countries**

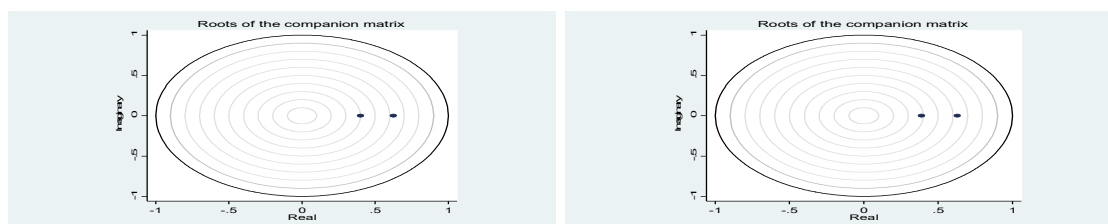
In Tables A13 and A14, the Panel VAR is stationary and stable in that we observe that all the roots in module are less than one, and belong to the unit disk of both PVARs. (Figure A2).

**Table A13.** PVAR1 Eigenvalue stability condition.

<i>Eigenvalue</i>		<i>Modulus</i>
<i>Real</i>	<i>Imaginary</i>	
.6247246	0	.6247246
.3995392	0	.3995392

**Table A14.** PVAR1 Eigenvalue stability condition.

<i>Eigenvalue</i>		<i>Modulus</i>
<i>Real</i>	<i>Imaginary</i>	
.6299203	0	.6299203
.3887948	0	.3887948

**Figure A2.** Stability of the Panel VAR : Roots of the companion matrix.(1) *PVAR1*(2) *PVAR2*

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