

# Online Appendix for

## “Why Do Inflation Rates Vary Across Countries?”

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### **Abstract**

This document contains supplementary material, additional studies, and robustness checks that are relevant or briefly discussed in the main paper. Precisely, it consists of two sets of further analyses: Appendix A reports supplementary material and more details to the article; Appendix B provides the results based on inflation rates (IR), in contrast with those of the excess inflation rates (EIR).

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## Appendix A Supplemental details

Table A1: Fama-Macbeth Factor Lambda Estimation (60(t1)-Month Rolling Window)

This table presents the factor lambda estimates from Fama-MacBeth (1973)  $2^{nd}$  stage cross-sectional regressions of the 6 benchmark factors. The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 60-month rolling window; in the 2nd stage estimation of FM, the sample month is one month ahead (labeled as (t1) in the caption) of the 60 months used in the 1st stage estimation of FM. Columns **1** to **6** in this table report the univariate estimation for the corresponding factors, and columns **I** to **XVI** report the corresponding estimations for all the sixteen ( $2^4 = 16$ ) possible multivariate specifications while holding unemployment rate and energy price index fixed. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	<i>corr(f, gdp)</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<i>Intercept</i>		1.99*** (35.10)	2.00*** (35.12)	1.81*** (39.73)	1.93*** (35.51)	1.97*** (35.38)	1.97*** (37.88)	1.92*** (32.10)	1.74*** (34.44)	1.67*** (35.37)	1.67*** (34.96)	1.65*** (34.98)
1. $u_t$	-0.29	-0.20*** (-3.18)						-0.15*** (-2.94)	-0.16*** (-3.98)	-0.15*** (-3.72)	-0.11*** (-3.24)	-0.10*** (-2.74)
2. $e_t$	0.55		6.87*** (4.49)					6.35*** (3.44)	4.30*** (2.65)	7.83*** (3.96)	5.72*** (2.93)	9.12*** (4.41)
3. $a_t$	0.23			3.09*** (5.39)					2.53*** (3.95)	3.86*** (6.00)	3.05*** (5.10)	2.27*** (4.01)
4. $m_t$	-0.09				-3.30*** (-3.06)					-4.07*** (-3.64)	-2.64** (-2.15)	-6.98*** (-5.80)
5. $wu_t$	-0.06					-25.71*** (-5.00)					-21.88*** (-4.60)	-32.34*** (-5.71)
6. $cli_t$	0.67						0.51*** (3.41)					0.34*** (2.95)
$R^2$		0.10	0.12	0.15	0.12	0.11	0.10	0.19	0.26	0.31	0.35	0.39
	<i>corr(f, gdp)</i>	<b>VI</b>	<b>VII</b>	<b>VIII</b>	<b>IX</b>	<b>X</b>	<b>XI</b>	<b>XII</b>	<b>XIII</b>	<b>XIV</b>	<b>XV</b>	<b>XVI</b>
<i>Intercept</i>		1.82*** (31.54)	1.90*** (32.21)	1.90*** (34.00)	1.73*** (34.21)	1.72*** (35.34)	1.81*** (31.02)	1.82*** (33.10)	1.85*** (33.69)	1.69*** (35.91)	1.69*** (34.98)	1.77*** (32.30)
1. $u_t$	-0.29	-0.17*** (-3.40)	-0.06** (-1.91)	-0.14*** (-2.59)	-0.11*** (-3.64)	-0.14*** (-3.20)	-0.09*** (-2.96)	-0.13*** (-2.41)	-0.09*** (-2.79)	-0.14*** (-2.97)	-0.11*** (-3.06)	-0.09*** (-2.54)
2. $e_t$	0.55	12.13*** (5.94)	3.76*** (2.53)	5.40*** (2.90)	3.30** (2.18)	5.81*** (3.11)	7.40*** (4.25)	9.12*** (4.29)	7.57*** (4.33)	8.01*** (3.75)	7.69*** (4.26)	9.19*** (4.62)
3. $a_t$	0.23				2.30*** (3.67)	0.72 (1.11)				2.53*** (4.26)	0.89* (1.37)	
4. $m_t$	-0.09	-6.11*** (-5.39)					-5.44*** (-4.58)	-10.23*** (-8.50)		-7.76*** (-6.89)		-10.03*** (-8.32)
5. $wu_t$	-0.06		-13.88*** (-3.14)		-8.83** (-2.13)		-24.40*** (-4.95)		-30.97*** (-4.98)		-29.16*** (-5.40)	-39.09*** (-6.34)
6. $cli_t$	0.67			0.63*** (3.78)		0.45*** (3.59)		0.57*** (3.68)	0.31*** (2.77)	0.56*** (3.93)	0.31*** (2.67)	0.27** (2.38)
$R^2$		0.25	0.23	0.24	0.30	0.31	0.29	0.30	0.29	0.35	0.35	0.34

Table A2: **Fama-Macbeth Factor Lambda Estimation (60(t2)-Month Rolling Window)**

This table presents the factor lambda estimates from Fama-MacBeth (1973)  $2^{nd}$  stage cross-sectional regressions of the 6 benchmark factors. The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 60-month rolling window; in the 2nd stage estimation of FM, the sample month is two month ahead (labeled as (t2) in the caption) of the 60 months used in the 1st stage estimation of FM. Columns **1** to **6** in this table report the univariate estimation for the corresponding factors, and columns **I** to **XVI** report the corresponding estimations for all the sixteen ( $2^4 = 16$ ) possible multivariate specifications while holding unemployment rate and energy price index fixed. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	$corr(f, gdp)$	1	2	3	4	5	6	I	II	III	IV	V
Intercept		1.98*** (35.72)	2.00*** (35.73)	1.79*** (40.41)	1.92*** (36.07)	1.96*** (35.42)	1.96*** (38.66)	1.92*** (32.58)	1.72*** (35.06)	1.65*** (36.08)	1.65*** (35.43)	1.63*** (35.57)
1. $u_t$	-0.29	-0.16*** (-2.80)						-0.13*** (-2.37)	-0.14*** (-3.17)	-0.13*** (-3.14)	-0.09*** (-2.63)	-0.09** (-2.38)
2. $e_t$	0.55		6.06*** (4.30)					5.83*** (3.36)	3.96*** (2.56)	7.14*** (3.89)	4.94*** (2.75)	8.26*** (4.28)
3. $a_t$	0.23			2.94*** (5.29)					2.51*** (3.95)	3.83*** (5.92)	3.04*** (4.99)	2.13*** (3.79)
4. $m_t$	-0.09				-3.22*** (-3.10)					-4.10*** (-3.67)	-2.48** (-2.01)	-6.91*** (-5.67)
5. $wu_t$	-0.06					-27.43*** (-5.36)					-25.05*** (-5.14)	-34.66*** (-5.93)
6. $cli_t$	0.67						0.52*** (3.39)					0.28*** (2.56)
$R^2$		0.10	0.11	0.14	0.11	0.11	0.09	0.17	0.25	0.30	0.34	0.37
	$corr(f, gdp)$	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI
Intercept		1.81*** (32.26)	1.89*** (32.40)	1.88*** (34.67)	1.71*** (34.56)	1.71*** (36.03)	1.80*** (31.38)	1.80*** (33.82)	1.84*** (34.10)	1.67*** (36.63)	1.68*** (35.46)	1.75*** (32.76)
1. $u_t$	-0.29	-0.15*** (-2.85)	-0.04 (-1.12)	-0.11** (-2.08)	-0.09*** (-2.70)	-0.12*** (-2.78)	-0.07** (-2.19)	-0.11** (-2.09)	-0.08** (-2.30)	-0.12*** (-2.59)	-0.10*** (-2.70)	-0.08** (-2.19)
2. $e_t$	0.55	11.23*** (5.73)	3.01** (2.19)	4.91*** (2.72)	2.65** (1.87)	5.37*** (2.95)	6.36*** (3.83)	8.63*** (4.09)	6.56*** (3.94)	7.22*** (3.55)	6.65*** (3.87)	8.32*** (4.25)
3. $a_t$	0.23				2.37*** (3.76)	0.70 (1.09)				2.43*** (4.14)	0.84 (1.32)	
4. $m_t$	-0.09	-6.09*** (-5.50)					-5.27*** (-4.56)	-9.91*** (-8.23)		-7.59*** (-6.73)		-10.00*** (-8.31)
5. $wu_t$	-0.06		-17.61*** (-4.01)		-12.17*** (-2.80)		-26.94*** (-5.45)		-34.30*** (-5.45)		-31.36*** (-5.76)	-40.65*** (-6.55)
6. $cli_t$	0.67			0.59*** (3.56)		0.44*** (3.47)		0.55*** (3.54)	0.26*** (2.40)	0.53*** (3.68)	0.26** (2.32)	0.23** (1.98)
$R^2$		0.24	0.22	0.23	0.28	0.29	0.28	0.29	0.27	0.34	0.33	0.33

Table A3: **Fama-Macbeth Factor Lambda Estimation (60(t3)-Month Rolling Window)**

This table presents the factor lambda estimates from Fama-MacBeth (1973)  $2^{nd}$  stage cross-sectional regressions of the 6 benchmark factors. The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 60-month rolling window; in the 2nd stage estimation of FM, the sample month is three month ahead (labeled as (t3) in the caption) of the 60 months used in the 1st stage estimation of FM.. Columns **1** to **6** in this table report the univariate estimation for the corresponding factors, and columns **I** to **XVI** report the corresponding estimations for all the sixteen ( $2^4 = 16$ ) possible multivariate specifications while holding unemployment rate and energy price index fixed. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	$corr(f, gdp)$	1	2	3	4	5	6	I	II	III	IV	V
$Intercept$		1.97*** (36.34)	1.99*** (36.40)	1.78*** (41.47)	1.92*** (36.71)	1.95*** (35.54)	1.94*** (39.66)	1.91*** (33.15)	1.71*** (36.00)	1.64*** (37.20)	1.63*** (36.37)	1.61*** (36.71)
1. $u_t$	-0.29	-0.13** (-2.37)						-0.10** (-1.87)	-0.11*** (-2.56)	-0.11*** (-2.64)	-0.07** (-2.14)	-0.07** (-1.77)
2. $e_t$	0.55		5.13*** (3.95)					5.22*** (3.26)	3.53*** (2.44)	6.47*** (3.67)	4.47*** (2.60)	7.87*** (4.16)
3. $a_t$	0.23			2.86*** (5.31)					2.61*** (4.17)	3.91*** (6.06)	3.07*** (4.99)	2.02*** (3.58)
4. $m_t$	-0.09				-3.07*** (-3.05)					-4.18*** (-3.86)	-2.36** (-1.96)	-6.75*** (-5.53)
5. $wu_t$	-0.06					-27.44*** (-5.33)					-25.91*** (-5.27)	-35.13*** (-5.95)
6. $cli_t$	0.67						0.48*** (3.15)					0.25*** (2.42)
$R^2$		0.09	0.10	0.13	0.11	0.10	0.08	0.16	0.23	0.29	0.32	0.35
	$corr(f, gdp)$	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI
$Intercept$		1.80*** (33.12)	1.88*** (32.81)	1.87*** (35.81)	1.69*** (35.31)	1.69*** (37.32)	1.79*** (32.01)	1.79*** (35.05)	1.82*** (34.97)	1.65*** (38.02)	1.67*** (36.44)	1.74*** (33.68)
1. $u_t$	-0.29	-0.11** (-2.29)	-0.01 (-0.41)	-0.07* (-1.45)	-0.07** (-1.99)	-0.09** (-2.04)	-0.04* (-1.38)	-0.08* (-1.61)	-0.05* (-1.49)	-0.09** (-2.06)	-0.07** (-1.93)	-0.05* (-1.49)
2. $e_t$	0.55	10.40*** (5.64)	2.44** (1.92)	4.72*** (2.72)	2.18* (1.65)	5.16*** (2.95)	5.61*** (3.58)	8.47*** (4.08)	6.03*** (3.78)	6.68*** (3.36)	6.30*** (3.81)	7.83*** (4.14)
3. $a_t$	0.23				2.48*** (3.92)	0.71 (1.14)				2.37*** (4.06)	0.82* (1.32)	
4. $m_t$	-0.09	-6.02*** (-5.58)					-5.22*** (-4.70)	-9.78*** (-8.25)		-7.48*** (-6.66)		-10.06*** (-8.49)
5. $wu_t$	-0.06		-19.03*** (-4.33)		-14.46*** (-3.17)		-26.66*** (-5.47)		-36.46*** (-5.71)		-33.08*** (-6.00)	-40.54*** (-6.47)
6. $cli_t$	0.67			0.49*** (3.15)		0.36*** (3.00)		0.47*** (3.24)	0.23** (2.11)	0.46*** (3.31)	0.22** (2.10)	0.21** (1.91)
$R^2$		0.22	0.20	0.21	0.27	0.28	0.26	0.27	0.26	0.32	0.31	0.31

**Table A4: Group by EIR (EIR > 0, 102 Countries and Regions) Fama-Macbeth Factor Lambda Estimation (60-Month Rolling Window)**

This table presents the factor lambda estimates from Fama-MacBeth (1973)  $2^{nd}$  stage cross-sectional regressions of the 6 benchmark factors. The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 60-month rolling window. Columns **1** to **6** in this table report the univariate estimation for the corresponding factors, and columns **I** to **XVI** report the corresponding estimations for all the sixteen ( $2^4 = 16$ ) possible multi-variate specifications while holding unemployment rate and energy price index fixed. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	<i>corr(f, gdp)</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<i>Intercept</i>		4.82*** (38.53)	4.72*** (37.76)	4.43*** (41.77)	4.54*** (39.39)	4.65*** (39.55)	4.66*** (41.27)	4.73*** (35.64)	4.53*** (37.43)	4.41*** (37.45)	4.40*** (37.35)	4.38*** (36.32)
1. $u_t$	-0.29	-0.31*** (-3.77)						-0.24*** (-3.61)	-0.23*** (-4.28)	-0.21*** (-4.02)	-0.16*** (-3.56)	-0.16*** (-3.30)
2. $e_t$	0.55		6.32*** (3.78)					6.41*** (3.18)	3.43** (1.92)	6.98*** (3.43)	4.70** (2.36)	7.71*** (3.76)
3. $a_t$	0.23			3.55*** (5.97)					3.32*** (5.15)	5.17*** (7.93)	4.36*** (7.04)	3.09*** (5.23)
4. $m_t$	-0.09				-2.30** (-2.06)					-4.55*** (-3.90)	-3.71*** (-2.85)	-8.43*** (-6.83)
5. $wu_t$	-0.06					-20.91*** (-3.88)					-14.54*** (-2.85)	-29.01*** (-4.79)
6. $cli_t$	0.67						0.53*** (3.52)					0.47*** (3.55)
$R^2$		0.13	0.14	0.17	0.13	0.13	0.11	0.23	0.31	0.37	0.42	0.46
	<i>corr(f, gdp)</i>	<b>VI</b>	<b>VII</b>	<b>VIII</b>	<b>IX</b>	<b>X</b>	<b>XI</b>	<b>XII</b>	<b>XIII</b>	<b>XIV</b>	<b>XV</b>	<b>XVI</b>
<i>Intercept</i>		4.53*** (34.08)	4.72*** (35.73)	4.74*** (36.36)	4.52*** (37.25)	4.51*** (37.31)	4.53*** (33.96)	4.56*** (34.77)	4.66*** (36.24)	4.44*** (36.88)	4.46*** (36.96)	4.49*** (34.40)
1. $u_t$	-0.29	-0.23*** (-3.72)	-0.12*** (-3.19)	-0.23*** (-3.51)	-0.19*** (-4.02)	-0.21*** (-3.81)	-0.15*** (-3.37)	-0.20*** (-3.20)	-0.14*** (-3.24)	-0.20*** (-3.64)	-0.18*** (-3.60)	-0.14*** (-2.99)
2. $e_t$	0.55	12.64*** (5.74)	3.69** (2.20)	4.89** (2.37)	2.54* (1.51)	4.43** (2.22)	8.23*** (4.28)	9.52*** (4.16)	7.73*** (3.93)	6.80*** (3.15)	6.73*** (3.48)	9.99*** (4.63)
3. $a_t$	0.23				2.87*** (4.57)	1.05* (1.56)				3.62*** (5.84)	1.00* (1.50)	
4. $m_t$	-0.09	-4.80*** (-4.09)					-4.16*** (-3.39)	-9.76*** (-7.68)		-8.44*** (-7.22)		-9.93*** (-7.57)
5. $wu_t$	-0.06		-5.42 (-1.19)		-2.82 (-0.67)		-17.56*** (-3.44)		-24.42*** (-3.69)		-26.02*** (-4.35)	-37.03*** (-5.55)
6. $cli_t$	0.67			0.80*** (4.26)		0.56*** (4.04)		0.72*** (4.20)	0.46*** (3.53)	0.64*** (4.36)	0.44*** (3.33)	0.40*** (3.13)
$R^2$		0.30	0.29	0.30	0.36	0.37	0.35	0.36	0.35	0.42	0.42	0.41

**Table A5: Group by EIR (Import < Meidan) Fama-Macbeth Factor Lambda Estimation (60-Month Rolling Window)**

This table presents the factor lambda estimates from Fama-MacBeth (1973)  $2^{nd}$  stage cross-sectional regressions of the 6 benchmark factors. The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 60-month rolling window. Columns **1** to **6** in this table report the univariate estimation for the corresponding factors, and columns **I** to **XVI** report the corresponding estimations for all the sixteen ( $2^4 = 16$ ) possible multi-variate specifications while holding unemployment rate and energy price index fixed. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	$corr(f, gdp)$	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<i>Intercept</i>		2.86*** (38.91)	2.87*** (39.30)	2.61*** (44.14)	2.74*** (39.16)	2.75*** (42.01)	2.83*** (43.93)	2.82*** (36.23)	2.54*** (39.21)	2.44*** (37.55)	2.35*** (36.61)	2.28*** (35.90)
1. $u_t$	-0.29	-0.16*** (-4.25)						-0.13*** (-3.76)	-0.15*** (-4.09)	-0.15*** (-3.89)	-0.13*** (-3.49)	-0.15*** (-3.61)
2. $e_t$	0.55		2.56* (1.54)					2.23* (1.38)	0.28 (0.17)	6.33*** (2.78)	2.42 (1.09)	0.25 (0.11)
3. $a_t$	0.23			3.79*** (5.95)					2.51*** (3.49)	4.52*** (6.46)	3.75*** (5.56)	3.60*** (4.80)
4. $m_t$	-0.09				-4.69*** (-3.76)					-7.53*** (-5.58)	-6.15*** (-4.04)	-8.89*** (-5.07)
5. $wu_t$	-0.06					-29.77*** (-4.79)					-42.44*** (-6.00)	-48.38*** (-5.65)
6. $cli_t$	0.67						0.24*** (2.62)					0.37*** (2.93)
$R^2$		0.13	0.13	0.14	0.13	0.12	0.12	0.21	0.30	0.36	0.41	0.46
	$corr(f, gdp)$	<b>VI</b>	<b>VII</b>	<b>VIII</b>	<b>IX</b>	<b>X</b>	<b>XI</b>	<b>XII</b>	<b>XIII</b>	<b>XIV</b>	<b>XV</b>	<b>XVI</b>
<i>Intercept</i>		2.64*** (34.18)	2.67*** (36.65)	2.75*** (37.86)	2.40*** (37.91)	2.44*** (38.98)	2.54*** (33.96)	2.59*** (34.23)	2.69*** (37.35)	2.36*** (37.39)	2.36*** (38.25)	2.51*** (33.45)
1. $u_t$	-0.29	-0.14*** (-3.59)	-0.10*** (-3.49)	-0.12*** (-3.24)	-0.13*** (-3.93)	-0.15*** (-4.07)	-0.12*** (-3.31)	-0.13*** (-3.10)	-0.12*** (-3.20)	-0.17*** (-4.17)	-0.16*** (-3.63)	-0.13*** (-3.03)
2. $e_t$	0.55	8.16*** (4.44)	-2.18* (-1.44)	-0.90 (-0.48)	-1.84 (-1.12)	-3.48** (-1.84)	2.25* (1.30)	1.52 (0.68)	1.09 (0.62)	0.33 (0.13)	-0.47 (-0.27)	-0.91 (-0.45)
3. $a_t$	0.23				1.90*** (2.68)	1.04* (1.34)				4.00*** (5.36)	1.80** (2.18)	
4. $m_t$	-0.09	-9.73*** (-7.38)					-8.14*** (-5.77)	-11.93*** (-7.87)		-10.37*** (-6.83)		-10.56*** (-6.31)
5. $wu_t$	-0.06		-34.32*** (-5.64)		-24.88*** (-3.98)		-47.57*** (-7.14)		-32.84*** (-4.32)		-32.70*** (-3.94)	-53.76*** (-6.71)
6. $cli_t$	0.67			0.48*** (3.65)		0.38*** (3.56)		0.47*** (3.98)	0.35*** (2.85)	0.58*** (4.15)	0.35*** (2.65)	0.23** (1.78)
$R^2$		0.29	0.28	0.28	0.36	0.35	0.35	0.35	0.33	0.41	0.40	0.40

## Appendix B Inflation Rates (IR)-Based Analysis

Table B1: **Descriptive Statistics of Inflation Rates (IR)**

This table presents the mean, standard deviation (Std.), skewness (Skew.), excess kurtosis (Kurt.) and the real per capita GDP growth correlations of the cross-sectional mean, standard deviation (Std.), skewness (Skew.), excess kurtosis (Kurt.), and 5%, 25%, 50%(median), 75% and 95% percentiles among the inflation rates (IR) of 181 countries and regions, which is constructed as  $\pi_{i,t}^e \equiv \pi_{i,t} - \pi_{g,t}$ . The IR of 181 countries and regions are displayed in Table 1, which are annualized and in percentage units. The sample period is from January 1991 to February 2022, with monthly frequency.

	Mean	Std.	Skew.	Kurt.	5%	25%	50%	75%	95%
<b>Mean</b>	6.85	9.26	3.12	17.06	−0.59	1.85	4.20	8.67	23.97
<b>Std.</b>	3.48	4.55	1.63	15.48	1.34	1.17	2.09	4.69	14.67
<b>Skew.</b>	1.00	0.71	0.44	1.97	−0.10	0.53	0.85	1.55	1.09
<b>Kurt.</b>	−0.13	−0.82	0.81	4.55	0.55	0.78	−0.13	1.95	−0.15
<b>corr</b> ( $\pi^e, gdp$ )	0.13	0.10	−0.05	−0.06	0.19	0.17	0.10	0.10	0.11

Table B2: IR-Based Fama-Macbeth Factor Lambda Estimation (60-Month Rolling Window)

This table presents the factor lambda estimates from Fama-MacBeth (1973)  $2^{nd}$  stage cross-sectional regressions of 181 Inflation Rate (IR) series on the 6 benchmark factors (unemployment rate  $u_t$ , energy  $e_t$ , agriculture  $a_t$ , precious metals  $m_t$ , world uncertainty  $wu_t$  and composite leading indicator  $cli_t$ ). The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 60-month rolling window. Columns **1** to **6** in this table report the univariate estimation for the corresponding factors, and columns **I** to **XVI** report the corresponding estimations for all the sixteen ( $2^4 = 16$ ) possible multivariate specifications while holding unemployment rate and energy price index fixed. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	$corr(f, gdp)$	1	2	3	4	5	6	I	II	III	IV	V
$Intercept$		5.44*** (52.23)	5.51*** (48.78)	5.12*** (48.13)	5.20*** (46.69)	5.53*** (48.57)	5.29*** (48.36)	5.38*** (47.61)	5.10*** (49.57)	5.01*** (51.07)	5.04*** (51.74)	5.09*** (54.85)
1. $u_t$	-0.29	-0.23*** (-3.52)						-0.16*** (-3.33)	-0.16 (-3.95)	-0.14*** (-3.60)	-0.10*** (-3.08)	-0.09*** (-2.63)
2. $e_t$	0.55		7.29*** (4.38)					6.37*** (3.31)	4.18*** (2.50)	7.73*** (3.88)	5.64*** (2.86)	8.75*** (4.31)
3. $a_t$	0.23			3.22*** (5.44)					2.46*** (3.84)	3.85*** (6.05)	3.03*** (5.11)	2.30*** (4.09)
4. $m_t$	-0.09				-3.18*** (-2.79)					-4.36*** (-3.81)	-3.36*** (-2.69)	-7.18*** (-5.93)
5. $wu_t$	-0.06					-24.53*** (-4.61)					-20.02*** (-4.19)	-31.01*** (-5.48)
6. $cli_t$	0.67						0.48*** (3.34)					0.27*** (2.61)
$R^2$		0.11	0.13	0.16	0.12	0.11	0.10	0.20	0.28	0.33	0.37	0.40
	$corr(f, gdp)$	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI
$Intercept$		5.22*** (46.93)	5.37*** (47.80)	5.33*** (49.07)	5.13*** (50.18)	5.11*** (53.10)	5.20*** (46.77)	5.28*** (49.85)	5.29*** (48.89)	5.10*** (54.38)	5.09*** (53.27)	5.24*** (49.65)
1. $u_t$	-0.29	-0.16*** (-3.38)	-0.07*** (-2.53)	-0.15*** (-3.18)	-0.11*** (-3.58)	-0.14*** (-3.35)	-0.09*** (-2.83)	-0.14*** (-2.78)	-0.08*** (-2.69)	-0.13*** (-3.12)	-0.10*** (-2.96)	-0.08** (-2.31)
2. $e_t$	0.55	12.25*** (5.88)	4.20*** (2.65)	5.63*** (2.90)	3.34** (2.14)	5.36*** (2.85)	7.99*** (4.45)	9.15*** (4.27)	7.78*** (4.32)	7.72*** (3.64)	7.20*** (4.04)	9.13*** (4.62)
3. $a_t$	0.23				2.13*** (3.40)	0.83 (1.26)				2.63*** (4.41)	0.94* (1.45)	
4. $m_t$	-0.09	-6.21*** (-5.31)					-5.73*** (-4.67)	-10.37*** (-8.43)		-7.80*** (-6.77)		-10.01*** (-8.12)
5. $wu_t$	-0.06		-10.94*** (-2.48)		-7.48** (-1.84)		-22.29*** (-4.55)		-27.22*** (-4.36)		-28.17*** (-5.15)	-37.12*** (-5.98)
6. $cli_t$	0.67			0.64*** (4.00)		0.41*** (3.53)		0.57*** (3.84)	0.27*** (2.72)	0.52*** (3.95)	0.23** (2.32)	0.21** (2.04)
$R^2$		0.27	0.25	0.26	0.31	0.33	0.31	0.32	0.31	0.37	0.36	0.36



**Table B3: IR-Based Fama-Macbeth Factor Lambda Estimation (90-Month Rolling Window)**

This table presents the factor lambda estimates from Fama-MacBeth (1973)  $2^{nd}$  stage cross-sectional regressions of 181 Inflation Rate (IR) series on the 6 benchmark factors (unemployment rate  $u_t$ , energy  $e_t$ , agriculture  $a_t$ , precious metals  $m_t$ , world uncertainty  $wu_t$  and composite leading indicator  $cli_t$ ). The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 90-month rolling window. Columns **1** to **6** in this table report the univariate estimation for the corresponding factors, and columns **I** to **XVI** report the corresponding estimations for all the sixteen ( $2^4 = 16$ ) possible multivariate specifications while holding unemployment rate and energy price index fixed. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

$corr(f, gdp)$	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<i>Intercept</i>	5.04*** (60.89)	4.95*** (50.49)	4.47*** (52.35)	4.69*** (50.79)	5.18*** (58.12)	4.80*** (57.24)	4.80*** (53.23)	4.41*** (57.58)	4.41*** (59.18)	4.40*** (57.80)	4.41*** (67.69)
1. $u_t$	-0.29 (-3.76)	-0.25*** (-3.76)					-0.18*** (-4.09)	-0.18*** (-4.68)	-0.19*** (-4.61)	-0.14*** (-4.62)	-0.13*** (-3.77)
2. $e_t$	0.55	9.60*** (5.70)					9.39*** (4.77)	7.95*** (5.48)	8.41*** (5.43)	7.33*** (4.75)	5.80*** (4.02)
3. $a_t$	0.23		1.71*** (2.82)					1.49** (2.36)	2.79*** (4.30)	2.03*** (3.41)	1.49*** (2.55)
4. $m_t$	-0.09			-4.94*** (-3.75)					-5.81*** (-5.06)	-3.31*** (-2.54)	-5.33*** (-3.66)
5. $wu_t$	-0.06				-24.48*** (-4.07)					-22.10*** (-4.17)	-28.51*** (-5.12)
6. $cli_t$	0.67					0.42*** (3.24)					0.14* (1.34)
$R^2$	0.08	0.09	0.13	0.11	0.08	0.09	0.16	0.24	0.30	0.33	0.37
$corr(f, gdp)$	<b>VI</b>	<b>VII</b>	<b>VIII</b>	<b>IX</b>	<b>X</b>	<b>XI</b>	<b>XII</b>	<b>XIII</b>	<b>XIV</b>	<b>XV</b>	<b>XVI</b>
<i>Intercept</i>	4.59*** (51.55)	4.80*** (53.33)	4.66*** (59.16)	4.45*** (58.19)	4.47*** (68.83)	4.58*** (50.97)	4.61*** (59.47)	4.60*** (57.95)	4.49*** (70.08)	4.43*** (68.14)	4.52*** (57.68)
1. $u_t$	-0.29 (-3.80)	-0.18*** (-3.88)	-0.18*** (-4.13)	-0.13*** (-4.81)	-0.16*** (-4.45)	-0.12*** (-4.13)	-0.19*** (-3.90)	-0.06*** (-2.79)	-0.19*** (-4.20)	-0.10*** (-3.92)	-0.11*** (-3.37)
2. $e_t$	0.55	11.42*** (6.92)	8.31*** (4.87)	9.67*** (4.85)	8.64*** (5.92)	6.98*** (4.80)	8.82*** (5.93)	8.45*** (5.20)	8.18*** (5.27)	6.36*** (4.01)	7.12*** (5.41)
3. $a_t$	0.23			1.62*** (2.60)	1.60** (2.37)				2.03*** (3.23)	1.66*** (2.64)	
4. $m_t$	-0.09	-8.33*** (-6.56)				-7.40*** (-5.71)	-8.69*** (-6.07)		-5.96*** (-4.38)		-9.09*** (-6.42)
5. $wu_t$	-0.06		-14.80*** (-3.12)	-8.49** (-1.76)		-27.06*** (-5.26)		-22.86*** (-3.66)		-12.75** (-2.36)	-38.93*** (-6.95)
6. $cli_t$	0.67		0.42*** (3.22)		0.20** (2.02)		0.46*** (3.23)	-0.06 (-0.83)	0.38*** (2.89)	-0.04 (-0.45)	0.10 (0.96)
$R^2$	0.24	0.21	0.21	0.28	0.29	0.28	0.29	0.26	0.34	0.33	0.33

Table B4: **IR-Based Robustness Check: 60-Month Rolling Window**

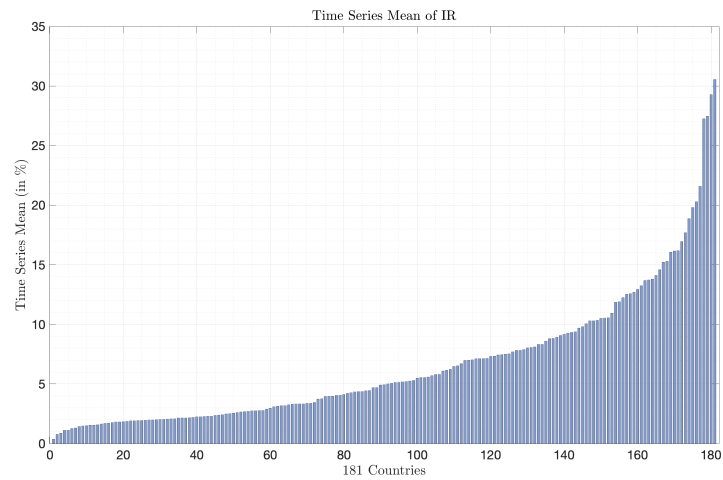
This table presents the factor lambda estimates from Fama-MacBeth (1973) 2<sup>nd</sup> stage cross-sectional regressions of 181 Inflation Rate (IR) series on additional nine factors (seven procyclical factors: commodity prices of crude oil  $oil_t$ , food  $food_t$ , grains  $grain_t$ , raw materials  $raw_t$ , timber  $timber_t$ , as well as production of total industry  $mei_t$ , consumer confidence index  $cci_t$ ; two countercyclical factors: world uncertainty-simple average  $wus_t$ , and exchange rate  $ex_t$ ). The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 60-month rolling window. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	$corr(f, gdp)$	7	8	9	10	11	12	13	14	15
<i>Intercept</i>		5.51*** (49.15)	5.31*** (48.70)	5.28*** (49.55)	5.35*** (47.87)	5.50*** (48.72)	5.37*** (48.52)	5.63*** (53.27)	5.51*** (48.32)	5.22*** (41.52)
7. $oil_t$	0.54	8.03*** (4.13)								
8. $food_t$	0.21		2.40*** (3.31)							
9. $grain_t$	0.15			5.24*** (3.81)						
10. $raw_t$	0.20				2.39*** (4.92)					
11. $timber_t$	0.07					2.02*** (4.09)				
12. $mei_t$	0.88						0.99*** (2.47)			
13. $cci_t$	0.55							0.04** (2.26)		
14. $wus_t$	-0.10								-8.15*** (-3.42)	
15. $ex_t$	-0.02									-8.78*** (-6.65)
$R^2$		0.12	0.15	0.14	0.13	0.13	0.10	0.10	0.10	0.12

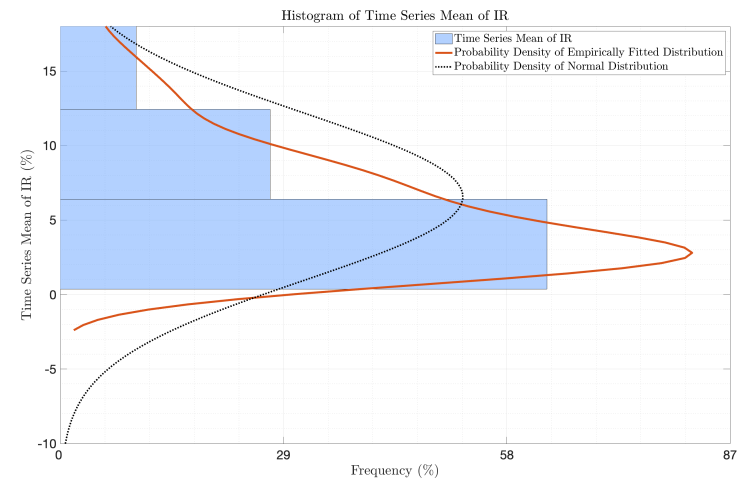
Table B5: **IR-Based Robustness Check: 90-Month Rolling Window**

This table presents the factor lambda estimates from Fama-MacBeth (1973) 2<sup>nd</sup> stage cross-sectional regressions of 181 Inflation Rate (IR) series on additional nine factors (seven procyclical factors: commodity prices of crude oil  $oil_t$ , food  $food_t$ , grains  $grain_t$ , raw materials  $raw_t$ , timber  $timber_t$ , as well as production of total industry  $mei_t$ , consumer confidence index  $cci_t$ ; two countercyclical factors: world uncertainty-simple average  $wus_t$ , and exchange rate  $ex_t$ ). The actual factors are the ARMA(1,1) residuals of the corresponding original factors, and the analysis is based on the 90-month rolling window. Factor lambda estimations are displayed in percentage units and  $t$ -statistics are shown in parentheses. \*, \*\*, and \*\*\* indicate statistical significance of the factor lambdas at the 90%, 95%, and 99% levels respectively. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

	$corr(f, gdp)$	7'	8'	9'	10'	11'	12'	13'	14'	15'
<i>Intercept</i>		4.94*** (50.69)	4.68*** (50.39)	4.81*** (56.28)	4.84*** (51.59)	5.13*** (57.13)	5.00*** (56.78)	5.22*** (64.80)	5.15*** (57.38)	4.94*** (49.15)
7. $oil_t$	0.54	11.82*** (5.98)								
8. $food_t$	0.21		1.35** (1.90)							
9. $grain_t$	0.15			3.59*** (2.89)						
10. $raw_t$	0.20				1.87*** (3.46)					
11. $timber_t$	0.07					2.77*** (5.36)				
12. $mei_t$	0.88						0.50* (1.44)			
13. $cci_t$	0.55							0.04** (2.14)		
14. $wus_t$	-0.10								-13.23*** (-5.03)	
15. $ex_t$	-0.02									-7.94*** (-5.75)
$R^2$		0.09	0.11	0.12	0.11	0.09	0.06	0.08	0.08	0.09



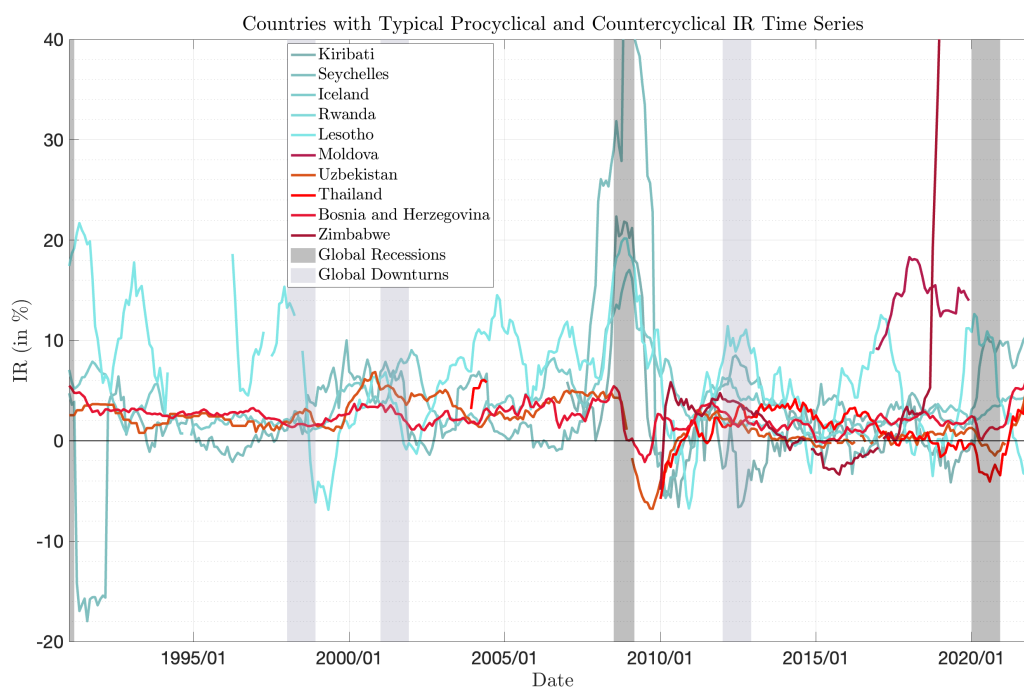
(a) Sorted Time Series Mean of IR



(b) Time Series Mean of IR Histogram

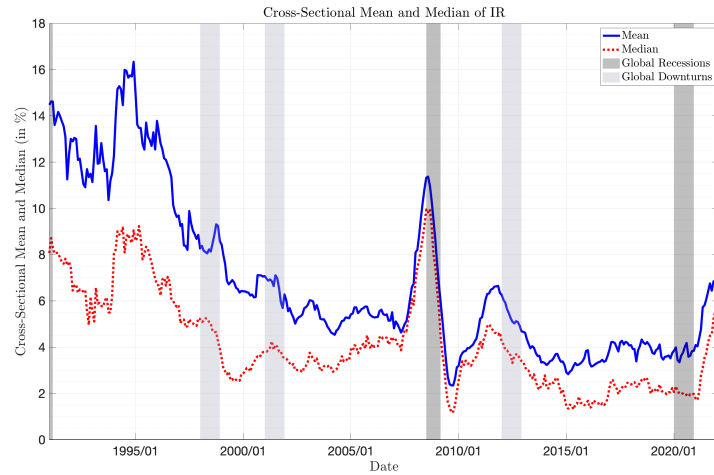
**Table B1: Time Series Mean of Inflation Rate (IR)**

The 181 countries of countries are reported in Table 1. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.

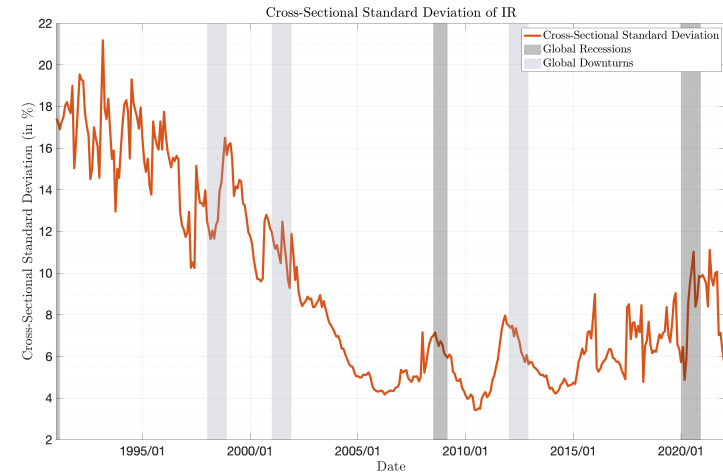


**Table B2: Countries with Typical Procyclical and Countercyclical IR Time Series**

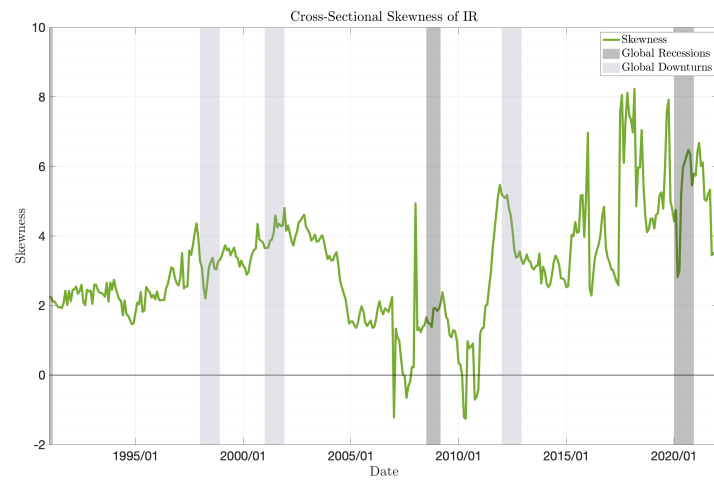
This figure plots the time series of the most procyclical IR of five countries (red series), and the most countercyclical IR of five countries (blue series) based on their correlation with global real GDP growth. Data are annualized monthly, from January 1991 to February 2022.



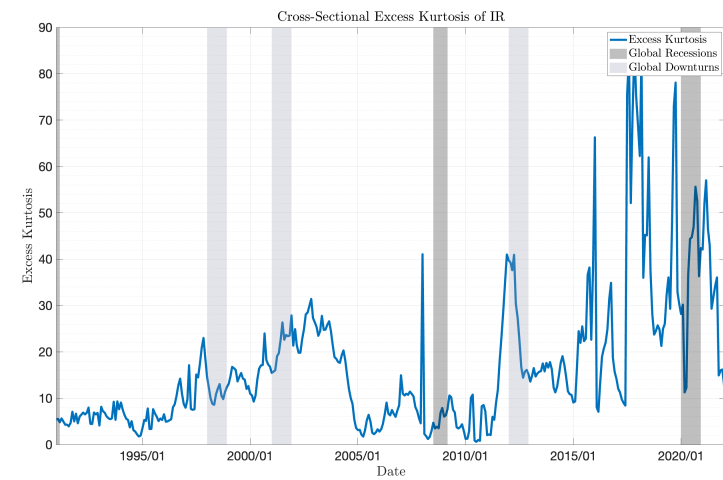
(a) Cross-Sectional Mean and Median of IR



(b) Cross-Sectional Standard Deviation of IR



(c) Cross-Sectional Skewness of IR



(d) Cross-Sectional Excess Kurtosis of IR

**Table B3: Time Series Plots of Cross-Sectional Moments of Inflation Rate (IR)**

The 181 countries of their IR are reported in Table 1. Data are annualized monthly data, and the sample period is from January 1991 to February 2022.