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Working Paper

The performance of emerging markets during the fed's easing and tightening cycles: A resilience analysis across economies

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APPENDIXES

The Performance of Emerging Markets During the Fed's Easing and Tightening Cycles: A Resilience Analysis Across Economies

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Appendix A: Data Sources and Definitions

Variable	Definition	Source, Identifier
DXRcycle_i	Variation in log of UXR during the monetary cycle "i" in percent	Own calculations based on UXR
MSCIcycle_i	Variation in log of MSCI index during the monetary cycle "i" in percent	Own calculations based MSCI
EMPcycle_i	Variation of EMP index during the monetary cycle "i"	Own calculations based on emp_usd
XR	XR, USD per Domestic Currency, Period Average	IMF, IFS, EDNA_USD_XDC_RATE
UXR	1 USD = UXR Domestic currency, Domestic currency per USD	Computed from XR
EMP	Exchange rate Market Pressures - Goldberg-Krogstrup (2023)	https://www.newyorkfed.org/medialibrary/media/research/economists/goldberg/EMP_index_full.csv
MSCI	MSCI economy indexes	https://www.msci.com/index-methodology
CAB	Current Account Balance in % of GDP	World Bank, WDI, BN.CAB.XOKA.GD.ZS
NIIP	net IIP / GDP domestic currency	https://www.brookings.edu/articles/the-external-wealth-of-nations-database/
GDeficit	Gov. Net Lending/Borrowing in % of GDP	IMF, WEO, GGXCNL_NGDP
GDebt	General Gov. Gross Debt in % of GDP	IMF, WEO, GGXWDG_NGDP
CPI	Consumer Price Inflation	World Bank, WDI, FP.CPI.TOTL.ZG
FUELX	Fuel Export on Total Exports	World Bank, WDI, TX.VAL.FUEL.ZS.UN
FUELM	Fuel Import on Total Imports	World Bank, WDI, TM.VAL.FUEL.ZS.UN
kaopen	Chinn-Ito index	https://web.pdx.edu/~ito/Chinn-Ito_website.htm
FI	Financial Institution index	IMF, FDI, FD_FI_IX
FM	Financial Market index	IMF, FDI, FD_FM_IX
extconf	ICRG index - External Conflict	https://www.prsgroup.com/
bureau	ICRG index - Bureaucracy Quality	https://www.prsgroup.com/
corruption	ICRG index - Corruption	https://www.prsgroup.com/
demoacc	ICRG index - Democratic Accountability	https://www.prsgroup.com/
ethnictens	ICRG index - Ethnic Tensions	https://www.prsgroup.com/
govstab	ICRG index - Government Stability	https://www.prsgroup.com/
intconf	ICRG index - Internal Conflict	https://www.prsgroup.com/
laworder	ICRG index - Law and Order	https://www.prsgroup.com/
milpol	ICRG index - Law and Order	https://www.prsgroup.com/
reltensions	ICRG index - Religious Tensions	https://www.prsgroup.com/
ers	Exchange Rate Stability Index	https://web.pdx.edu/~ito/trilemma_indexes.htm
RES	Total reserves minus gold (current $)	World Bank, WDI, FI.RES.XGLD.CD
CURGDP	GDP (current $)	World Bank, WDI, NY.GDP.MKTP.CD
RESGDP	Total reserves minus gold (% of GDP)	Own calculations, 100*(RES/CURGDP)
IT	Inflation Targeters	Own elaboration

Source: Authors.

Appendix B: Composition of the Samples in the Cross-Sectional Regressions

Largest sample (65 economies) in the bilateral exchange rate regressions in Tables 6 and 7: United Kingdom; Denmark; Norway; Sweden; Switzerland; Canada; Japan; Iceland; Australia; New Zealand; South Africa; Brazil; Chile; Colombia; Costa Rica; Dominican Republic; Guatemala; Honduras; Mexico; Nicaragua; Paraguay; Peru; Uruguay; Jamaica; Trinidad and Tobago; Israel; Kuwait; Egypt; Hong Kong, China; India; Indonesia; Republic of Korea (ROK); Malaysia; Pakistan; Philippines; Singapore; Thailand; Botswana; Cameroon; Ghana; Kenya; Madagascar; Morocco; Mozambique; Nigeria; Namibia; Tanzania; Tunisia; Uganda; Zambia; Armenia; Belarus; Albania; Kazakhstan; Bulgaria; Moldova; Russian Federation; People's Republic of China (PRC); Ukraine; Czech Republic; Hungary; Mongolia; Croatia; Poland; Romania.

Largest sample (37 economies) in the EMP regressions in Tables 8 and 9: United Kingdom; Denmark; Norway; Sweden; Switzerland; Canada; Japan; Australia; New Zealand; South Africa; Bolivia; Brazil; Chile; Colombia; Mexico; Peru; Uruguay; Israel; Jordan; Hong Kong, China; India; ROK; Malaysia; Singapore; Thailand; Botswana; Morocco; Tunisia; Armenia; Russian Federation; PRC; Ukraine; Czech Republic; Hungary; Croatia; Poland; Romania.

Largest sample (45 economies) in the MSCI regressions in Tables 10 and 11: United Kingdom; Austria; Belgium; Denmark; France; Germany; Italy; Netherlands; Norway; Sweden; Switzerland; Canada; Japan; Finland; Ireland; Portugal; Spain; Türkiye; Australia; New Zealand; South Africa; Brazil; Chile; Colombia; Mexico; Peru; Israel; Jordan; Kuwait; Egypt; Sri Lanka; Hong Kong, China; India; Indonesia; ROK; Malaysia; Pakistan; Philippines; Singapore; Thailand; Morocco; PRC; Czech Republic; Hungary; Poland.

Appendix C: Inspecting the Global Financial Crisis Cycle

Table C1: Cross-Sectional Regressions for the Bilateral Exchange Rate Variation

Variables	Full set DXR before ZLB	Backward stepwise DXR before ZLB	Full set DXR after ZLB	Backward stepwise DXR after ZLB
CAB	-0.2018	-0.1729	-0.3161*	**-0.3157****
	(0.2209)	(0.1089)	(0.1712)	**(0.1264)**
RESGDP	-0.1149		-0.2607*	-0.1687*
	(0.1798)		(0.1441)	(0.0889)
NIIP	-0.5869		5.5470	
	(4.1981)		(4.5099)	
GDeficit	0.2990		0.3412	0.3486
	(0.4098)		(0.3230)	(0.2604)
GDebt	-0.1316	-0.1334*	0.0592	
	(0.0983)	(0.0675)	(0.0473)	
CPI	0.8421	1.0568*	0.6554	
	(0.8010)	(0.5892)	(0.7611)	
FUELX	-0.0445		-0.0970	**-0.1216****
	(0.1005)		(0.0642)	**(0.0583)**
FUELM	0.1848		0.2777	**0.3429****
	(0.2418)		(0.1978)	**(0.1529)**
kaopen	-2.2140	-1.7276	0.7859	
	(2.0150)	(1.2715)	(1.6189)	
ers	8.9904		-2.8290	
	(10.1540)		(7.6743)	
IT	10.2767	**10.3655*****	-4.6410	-6.7459*
	(6.1332)	**(3.0556)**	(4.9016)	(3.8975)
FI	-8.4903		**-42.9457*****	**-41.0517*****
	(18.7617)		**(14.4616)**	**(9.8373)**
FM	17.7833	10.8263	12.3409	14.8609*
	(14.8970)	(8.1248)	(8.5950)	(7.5072)
extconf	-0.3840		-0.4802	
	(2.0098)		(1.4707)	
corruption	3.1023	2.5362	-2.3459	
	(3.4553)	(1.7798)	(2.4467)	
demoacc	0.1869		1.9031	
	(2.0065)		(1.4830)	
ethnictens	-0.2255		-1.8964	-2.0897*
	(1.7527)		(1.6236)	(1.1581)
govstab	0.1656		**3.4028****	**2.4545****
	(1.7694)		**(1.5430)**	**(1.1689)**
intconf	1.2133		0.8124	
	(1.6716)		(1.5668)	
laworder	-2.1795		1.3667	
	(2.8575)		(2.1119)	
milpol	1.7687		2.7778	**3.5967*****
	(2.2000)		(1.8984)	**(1.2652)**
reltensions	-0.7238		-0.1113	
	(1.8027)		(1.3560)	
Constant	-11.4217	-3.6670	-19.3509	-2.8635
	(29.3220)	(7.3894)	(21.0067)	(10.4352)
Countries	69	69	65	65
R-squared	0.3761	0.3141	0.5225	0.4578
RMSE	13.81	12.57	11.54	10.95

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. Data for the index of exchange rate stability (ers) are not available for the fifth cycle. Bold indicates a significance level below 5%. The names of the variables and the acronyms used in the table are fully described in Appendix A.

Source: Authors' calculations.

Table C2: Cross-sectional Regressions for the MSCI Indexes

Variables	Full set MSCI before ZLB	Backward stepwise MSCI before ZLB	Full set MSCI after ZLB	Backward stepwise MSCI after ZLB
CAB	0.2975		-0.1650	
	(1.2263)		(1.2726)	
RESGDP	0.6070	**0.6998****	-0.7571*	-0.6735**
	(0.4461)	**(0.3007)**	(0.4248)	(0.2746)
NIIP	-6.5979		18.6028	**24.8733*****
	(12.3415)		(14.1329)	**(6.8238)**
GDeficit	-1.2325	-1.2223	1.1092	
	(1.7116)	(0.7880)	(1.5445)	
GDebt	-0.5030*	**-0.3951****	0.0671	
	(0.2524)	**(0.1456)**	(0.2199)	
CPI	-5.7036*	-3.7747	5.0363*	**3.4723*****
	(2.9178)	(2.5220)	(2.8051)	**(1.0537)**
FUELX	0.6397	**0.7033****	-0.5944	
	(0.4403)	**(0.3327)**	(0.4363)	
FUELM	1.3958	1.2398	-0.9447	
	(1.0010)	(0.8232)	(0.7558)	
kaopen	7.3083		-7.7525	-5.5828
	(7.2521)		(6.8885)	(3.5123)
ers	-28.8429		-54.0297	-26.9781*
	(51.0516)		(48.1141)	(13.6712)
IT	-6.9706		-14.0438	
	(26.0377)		(27.7160)	
FI	11.3660		43.7330	**56.7816****
	(51.0951)		(48.6382)	**(26.9805)**
FM	-16.2893		10.9947	
	(37.8275)		(43.3004)	
extconf	1.1760		3.6167	6.2049
	(9.6178)		(5.9654)	(3.9096)
corruption	-3.0406		7.2564	
	(12.5653)		(8.2939)	
demoacc	11.5671	**11.3193****	-8.0741	
	(7.6012)	**(4.5223)**	(6.4664)	
ethnictens	-2.7126		3.0321	
	(6.0226)		(4.7789)	
govstab	6.4822		-4.9401	
	(5.0846)		(5.1920)	
intconf	-4.1643		-6.0738	-7.5185**
	(6.8656)		(6.3542)	(3.5257)
laworder	-2.4236	-5.6053	-3.3801	
	(11.2953)	(4.0360)	(8.3769)	
milpol	-13.0735	**-12.5077****	4.8960	
	(8.8496)	**(5.2282)**	(7.7274)	
reltensions	5.7128	**6.9698****	-6.4450	
	(5.6249)	**(3.0397)**	(5.4810)	
Constant	-55.3818	**-68.6568****	135.6823	17.0445
	(87.6277)	**(33.2385)**	(107.7307)	(41.4191)
Countries	44	44	44	44
R-squared	0.5208	0.4508	0.5500	0.4310
RMSE	30.02	25.64	27.34	23.82

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. Bold indicates a significance level below 5%. The names of the variables and the acronyms used in the table are fully described in Appendix A.
Source: Authors' calculations.

Appendix D: Panel Evidence for the Bilateral Exchange During the Five Cycles

Variables	**Tightening cycles** DXR 5 cycles	**Easing cycles** DXR 5 cycles
CAB	**-0.3295****	-0.1635
	(0.1487)	(0.1730)
tight	**34.4543*****	
	(10.9600)	
c.CAB#c.tight	0.1660	
	(0.2281)	
kaopen	-1.4127	-1.3631
	(1.0396)	(0.9381)
c.kaopen#c.tight	0.0496	
	(1.4003)	
NIIP	-1.6504	3.0376*
	(1.6754)	(1.5742)
c.NIIP#c.tight	**4.6880****	
	(2.2990)	
FUELM	0.2130	**0.4813*****
	(0.1680)	**(0.1491)**
c.FUELM#c.tight	0.2683	
	(0.2247)	
GDebt	-0.0663	-0.0132
	(0.0489)	(0.0308)
c.GDebt#c.tight	0.0531	
	(0.0578)	
govstab	2.1891*	**-3.2524*****
	(1.1528)	**(0.7211)**
c.govstab#c.tight	**-5.4415*****	
	(1.3598)	
Constant	-7.9835	**26.4708*****
	(9.0356)	**(6.2031)**
Countries (max)	84	84
Observations	301	301
R-squared	0.1640	0.1640
RMSE	15.88	15.88

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. We use a backward stepwise selection procedure for the variables. The variables with p-values above 20% are sequentially removed from the model starting from the highest to the lowest p-value. Bold indicates a significance level below 5%. The dummies 'tight' and 'easy' refer to tightening and easing cycles, respectively. The names of the variables and the acronyms used in the table are fully described in Appendix A.
Source: Authors' calculations.

Appendix E: Panel Evidence for the MSCI Indexes During the Five Cycles

Variables	**Tightening cycles** MSCI 5 cycles	**Easing cycles** MSCI 5 cycles
CAB	1.1104	0.1714
	(0.7343)	(0.6082)
tight	-48.8189	
	(38.7173)	
c.CAB#c.tight	-0.9390	
	(0.9535)	
RESGDP	0.1020	**-0.2857****
	(0.1705)	**(0.1144)**
c.RESGDP#c.tight	-0.3877*	
	(0.2053)	
FI	-48.0720	**-76.9205*****
	(32.1093)	**(27.0512)**
c.FI#c.tight	-28.8485	
	(41.9854)	
GDeficit	-1.6081	0.3710
	(1.1956)	(0.8234)
c.GDeficit#c.tight	1.9790	
	(1.4517)	
FM	62.1074*	24.2695
	(33.1691)	(23.2395)
c.FM#c.tight	-37.8379	
	(40.5002)	
IT	14.7739*	7.6210
	(8.8401)	(6.8778)
c.IT#c.tight	-7.1529	
	(11.2005)	
FUELX	-0.0486	-0.2907
	(0.1905)	(0.2468)
c.FUELX#c.tight	-0.2421	
	(0.3118)	
FUELM	-0.1543	-0.7861*
	(0.6673)	(0.4486)
c.FUELM#c.tight	-0.6318	
	(0.8040)	
govstab	**-6.4414****	**11.1605*****
	(3.0182)	**(2.3375)**
c.govstab#c.tight	**17.6019*****	
	(3.8175)	
Constant	39.7995	-9.0194
	(27.9186)	(26.8250)
Countries (max.)	47	47
Observations	220	220
R-squared	0.2897	0.2897
RMSE	36.41	36.41

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. We use a backward stepwise selection procedure for the variables. The variables with p-values above 20% are sequentially removed from the model starting from the highest to the lowest p-value. Bold indicates a significance level below 5%. The dummies 'tight' and 'easy' refer to tightening and easing cycles, respectively. The names of the variables and the acronyms used in the table are fully described in Appendix A.
Source: Authors' calculations.

Appendix F: Robustness Checks

Table F1: Panel Evidence for the Bilateral Exchange During the Five Cycles

Variables	**Pooled** DXR 5 cycles	**Pooled tightenings** DXR 5 cycles	**Pooled easing** DXR 5 cycles	**Interaction tightenings** DXR 5 cycles	**Heterogenous** DXR 5 cycles
CAB	-0.2070*	-0.1635	**-0.3295****	**-0.3295****	**-0.3295****
	(0.1173)	(0.1724)	**(0.1493)**	**(0.1487)**	**(0.1492)**
tight				**34.4543*****	10.1814
				(10.9600)	(11.1203)
c.CAB#c.tight				0.1660	0.2323
				(0.2281)	(0.1974)
kaopen	**-1.5105****	-1.3631	-1.4127	-1.4127	-1.4127
	(0.7040)	(0.9352)	(1.0441)	(1.0396)	(1.0432)
c.kaopen#c.tight				0.0496	-0.1175
				(1.4003)	(1.2684)
NIIP	1.7823*	3.0376*	-1.6504	-1.6504	-1.6504
	(1.0167)	(1.5693)	(1.6826)	(1.6754)	(1.6813)
c.NIIP#c.tight				**4.6880****	2.9088
				(2.2990)	(2.0643)
FUELM	**0.4309*****	**0.4813*****	0.2130	0.2130	0.2130
	(0.1120)	**(0.1487)**	(0.1687)	(0.1680)	(0.1686)
c.FUELM#c.tight				0.2683	-0.2120
				(0.2247)	(0.2071)
GDebt	-0.0408	-0.0132	-0.0663	-0.0663	-0.0663
	(0.0288)	(0.0307)	(0.0491)	(0.0489)	(0.0490)
c.GDebt#c.tight				0.0531	0.0729
				(0.0578)	(0.0597)
govstab	**-1.3326****	**-3.2524*****	2.1891*	2.1891*	2.1891*
	(0.6678)	**(0.7189)**	(1.1577)	(1.1528)	(1.1568)
1.time#c.govstab#c.tight					**-3.3217****
					(1.3420)
3.time#c.govstab#c.tight					0.5115
					(1.4324)
5.time#c.govstab#c.tight					-1.2937
					(1.4593)
c.govstab#c.tight				**-5.4415*****	
				(1.3598)	
Constant	**14.5127*****	**26.4708*****	-7.9835	-7.9835	-7.9835
	(5.2905)	**(6.1835)**	(9.0746)	(9.0356)	(9.0672)
Observations	301	173	128	301	301
R-squared	0.0951	0.1702	0.1444	0.1640	0.3726
RMSE	16.33	16.57	14.89	15.88	13.81

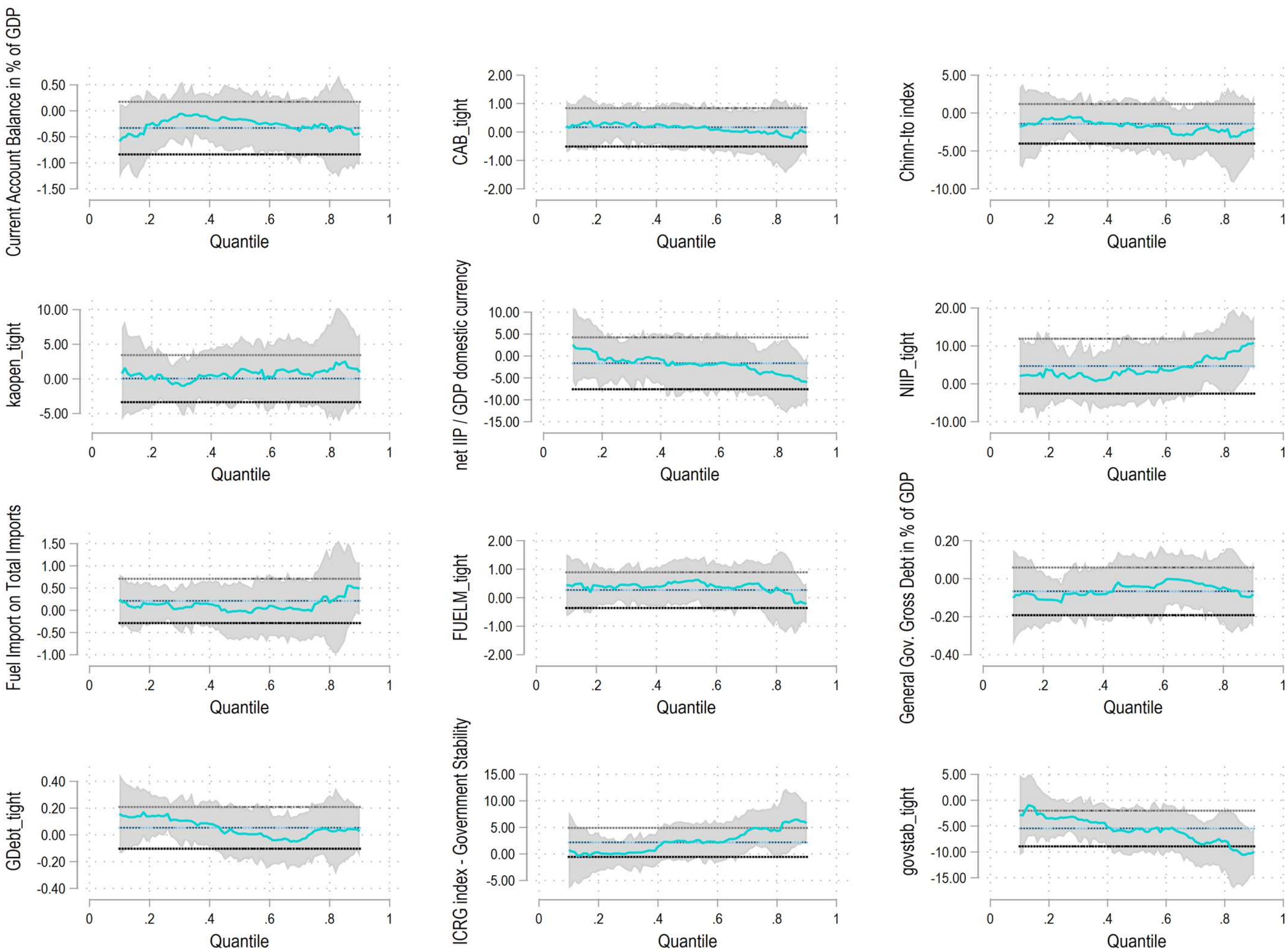
Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. We use a backward stepwise selection procedure for the variables. The variables with p-values above 20% are sequentially removed from the model starting from the highest to the lowest p-value. Bold indicates a significance level below 5%. The dummies 'tight' and 'easy' refer to tightening and easing cycles, respectively. Source: authors' calculations. The names of the variables and the acronyms used in the table are fully described in Appendix A.

Table F2: Panel Evidence for the MSCI Indexes During the Five Cycles

	Pooled	**Pooled tightenings**	**Pooled easing**	**Interaction tightenings**	**Heterogenous**
Variables	MSCI 5 cycles	MSCI 5 cycles	MSCI 5 cycles	MSCI 5 cycles	MSCI 5 cycles
CAB	0.9921* (0.5955)	0.1714 (0.6036)	1.1104 (0.7426)	1.1104 (0.7343)	1.1104 (0.7380)
tight				-48.8189 (38.7173)	14.4724 (34.0218)
c.CAB#c.tight				-0.9390 (0.9535)	-0.6605 (0.8613)
RESGDP	**-0.2220** (0.1057)**	**-0.2857** (0.1135)**	0.1020 (0.1724)	0.1020 (0.1705)	0.1020 (0.1713)
c.RESGDP#c.tight				-0.3877* (0.2053)	-0.1437 (0.1882)
FI	**-64.4896*** (23.1149)**	**-76.9205*** (26.8455)**	-48.0720 (32.4722)	-48.0720 (32.1093)	-48.0720 (32.2711)
c.FI#c.tight				-28.8485 (41.9854)	-19.2923 (39.3283)
GDeficit	-1.3532* (0.7629)	0.3710 (0.8172)	-1.6081 (1.2091)	-1.6081 (1.1956)	-1.6081 (1.2016)
c.GDeficit#c.tight				1.9790 (1.4517)	0.4655 (1.3728)
FM	34.0355 (21.5714)	24.2695 (23.0628)	62.1074* (33.5439)	62.1074* (33.1691)	62.1074* (33.3361)
c.FM#c.tight				-37.8379 (40.5002)	-24.1073 (38.3384)
IT	**14.3814** (5.9038)**	7.6210 (6.8255)	14.7739 (8.9400)	14.7739* (8.8401)	14.7739* (8.8846)
c.IT#c.tight				-7.1529 (11.2005)	-5.7592 (10.1759)
FUELX	-0.2347 (0.1726)	-0.2907 (0.2449)	-0.0486 (0.1927)	-0.0486 (0.1905)	-0.0486 (0.1915)
c.FUELX#c.tight				-0.2421 (0.3118)	0.0529 (0.2711)
FUELM	**-0.8027** (0.3882)**	-0.7861* (0.4452)	-0.1543 (0.6748)	-0.1543 (0.6673)	-0.1543 (0.6706)
c.FUELM#c.tight				-0.6318 (0.8040)	-0.2385 (0.7634)
govstab	**5.3239** (2.0846)**	**11.1605*** (2.3197)**	**-6.4414** (3.0523)**	**-6.4414** (3.0182)**	**-6.4414** (3.0334)**
1.time#c.govstab#c.tight					**10.0534*** (3.5667)**
3.time#c.govstab#c.tight					3.3441 (3.8489)
5.time#c.govstab#c.tight					0.8352 (3.7916)
c.govstab#c.tight				**17.6019*** (3.8175)**	
Constant	3.6636 (20.2270)	-9.0194 (26.6210)	39.7995 (28.2341)	39.7995 (27.9186)	39.7995 (28.0593)
Observations	220	130	90	220	220
R-squared	0.1365	0.3152	0.1377	0.2897	0.4863
RMSE	39.18	35.05	38.36	36.41	31.12

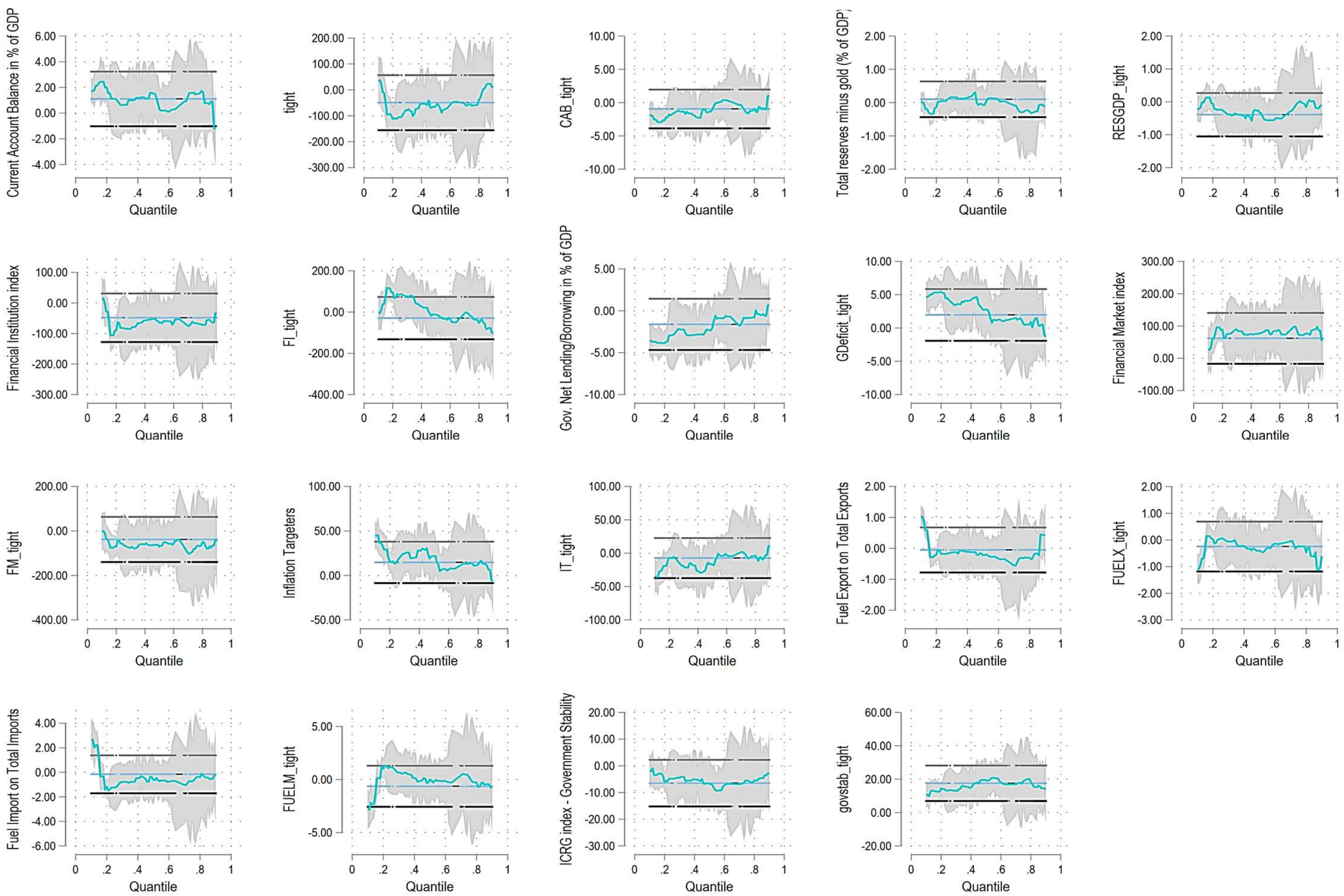
Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parentheses. We use a backward stepwise selection procedure for the variables. The variables with p-values above 20% are sequentially removed from the model starting from the highest to the lowest p-value. Bold indicates a significance level below 5%. The dummies 'tight' and 'easy' refer to tightening and easing cycles, respectively. The names of the variables and the acronyms used in the table are fully described in Appendix A.
Source: Authors' calculations.

Table F3: Panel Quantile Evidence for the Bilateral Exchange Rate During the Five Cycles



Note: The dotted lines correspond to the OLS estimation for each coefficient. The blue line and the shaded area indicate the percentile estimates. We use the model in column 5 of Table E1. The variables with the "_tight" term indicate interaction terms with the tightening cycles dummy and the corresponding ex-ante macroeconomic variable. The names of the variables and the acronyms used in the table are fully described in Appendix A.
Source: Authors' calculations.

Table F4: Panel Quantile Evidence for the MSCI Indexes During the Five Cycles



Note: The dotted lines correspond to the OLS estimation for each coefficient. The blue line and the shaded area indicate the percentile estimates. We use the model in column 5 of Table E1. The variables with the "_tight" term indicate interaction terms with the tightening cycles dummy and the corresponding ex-ante macroeconomic variable. The names of the variables and the acronyms used in the table are fully described in Appendix A.
Source: Authors' calculations.