Monetary policy spillovers, capital controls and exchange rate regimes, and the financial channel of exchange rates

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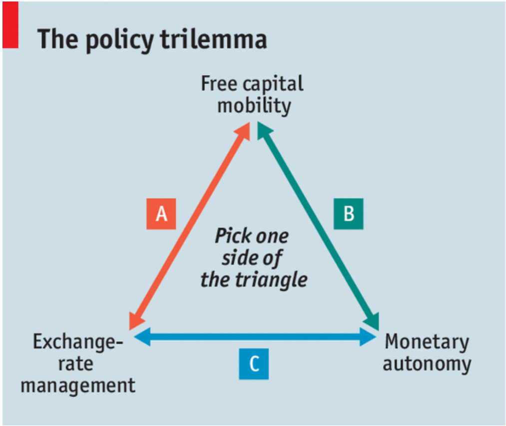
The trilemma/impossible trinity



Economist.com

Background and motivation

- Classic trilemma literature
  - Flexible FX and CCs reduce spillovers from US to local MP
  - Trilemma empirically valid description of policy trade-offs
- Global financial cycle and dilemma literature
  - Local financial conditions driven by US MP even with flexible FX
  - Dilemma, not trilemma
- This paper
  - Foreign-currency exposures may amplify spillovers from US MP
  - **Reluctance to exploit policy space granted by flexible FX?**

The trilemma and the financial channel of FX

- Financial globalisation raised cross-border exposures, partly in foreign currency
- Financial channel of FX: FX variation elicits variation in...
  - ...borrowing capacity of local agents through balance sheet effects
  - ...lending capacity of global lenders through risk-taking channel
- Implications for economies with flexible FX
  - Larger effects of base-country MP on local economy
  - Local MP may mimic base-country MP to limit FX variation
- **Although FX flexibility grants autonomy in principle, it may be optimal for local MP not to exploit it**

Findings

- Evidence for 2000s consistent with predictions from the trilemma **in general**
  - Both FX flexibility and CCs reduce spillovers from base-country MP
- However, **in specific circumstances**
  - Financial channel of FX reduces extent to which local policymakers exploit monetary autonomy granted by flexible FX

Outline

Literature

- Classic trilemma literature
  - Shambaugh (2004), Obstfeld et al. (2005), Klein and Shambaugh (2015)
  - Philippon et al. (2001), Frankel et al. (2004), Miniane and Rogers (2007), Bluedorn and Bowdler (2010), di Giovanni and Shambaugh (2008)
  - Bekaert and Mehl (2017), Jorda et al. (2017)
  - Obstfeld (2015), Aizenman et al. (2016), Caceres et al. (2016), Kharroubi and Zampolli (2016), Ricci and Shi (2016), Obstfeld et al. (2017)
- Global financial cycle and US monetary policy
  - Hellerstein (2011), Miranda-Agrippino and Rey (2015), Disyatat and Rungcharoenkitkul (2017)
  - Reinhart and Reinhart (2009), Forbes and Warnock (2012), Bekaert et al. (2013), Ghosh et al. (2014), Bruno and Shin (2015a), McCauley et al. (2015), Hofmann et al. (2017), Jorda et al. (2017)
- Dilemma vs. trilemma
  - Passari and Rey (2015), Rey (2016)
  - Edwards (2015), Hofmann and Takats (2015), Obstfeld (2015), Kharroubi and Zampolli (2016), Han and Wei (2018)
- Financial channel of exchange rates
  - Gourinchas and Obstfeld (2012), Bruno and Shin (2015a,b), Kearns and Patel (2016), Cerutti et al. (2017), Hofmann et al. (2017), Niepmann and Schmidt-Eisenlohr (2017), Avdjiev et al. (2018), Kalemli-Ozcan et al. (2018)
- Optimal MP limits FX variation in presence of foreign currency exposure
  - Cook (2004), Choi and Cook (2004), Elekdag and Tchakarov (2007), Rappoport (2009)

Taylor rule

- Consider a Taylor rule for economy i

$$i^p_{it} = \chi_i + \rho_i i^p_{i,t-1} + (1-\rho_i)\left(\boldsymbol{\phi}'_i \boldsymbol{x}^e_{it} + \boldsymbol{\kappa}'_i \boldsymbol{z}_t + \alpha_i \cdot i^p_{b_i,t}\right) + \nu_{it} \quad (1)$$

  - i^p_{it} is the local policy rate
  - $\boldsymbol{x}^e_{it}$ includes real-time forecasts of local fundamentals
  - $\boldsymbol{z}_t$ includes global variables
  - $i^p_{b_i,t}$ is the policy rate of economy i's base-country b_i

- $Corr(i^p_{it}, i^p_{b_i,t})$ due to common shocks captured by $\boldsymbol{x}^e_{it}$ and $\boldsymbol{z}_t$

The trilemma predicts that...

- α_i is a function of KA openness and the FX regime
- α_i assumes one out of four values α_j, $j \in \{I, II, III, IV\}$, where
  - **I** Open KA and fixed FX
  - **II** Closed KA and fixed FX
  - **III** Open KA and flexible FX
  - **IV** Closed KA and flexible FX
- we have

$$H_0 : \quad \alpha_I = 1, \ \alpha_{II} = \alpha_{III} = \alpha_{IV} = 0 \tag{2}$$

The trilemma in practice

- Trilemma should not be taken literally
  - Rare cases of “closed”/“open” KA and “flexible”/“fixed” FX
  - Intermediate regimes

- Pragmatic regime classification
  - I Limited CCs and limited FX flexibility
  - II Extensive CCs and limited FX flexibility
  - III Limited CCs and extensive FX flexibility
  - IV Extensive CCs and extensive FX flexibility

- Trilemma predictions modify to

$$H_0 : \quad \alpha_I > \alpha_{II}, \alpha_{III} > \alpha_{IV} \geq 0 \tag{3}$$

Testing the trilemma predictions

- Recall the Taylor rule

$$i_{it}^{p} = \chi_i + \rho_i i_{i,t-1}^{p} + (1-\rho_i)\left(\boldsymbol{\phi}_i'\boldsymbol{x}_{it}^{e} + \boldsymbol{\kappa}_i'\boldsymbol{z}_t + \alpha_i \cdot i_{b_i,t}^{p}\right) + \nu_{it} \tag{4}$$

- Assume homogeneity within regimes $j \in \{I,\ II,\ III,\ IV\}$

$$i_{it}^{p} = \chi_{ij} + \rho_j i_{i,t-1}^{p} + (1-\rho_j)\left(\boldsymbol{\phi}_j'\boldsymbol{x}_{it}^{e} + \boldsymbol{\kappa}_j'\boldsymbol{z}_t + \alpha_j \cdot i_{b_i,t}^{p}\right) + \nu_{it} \tag{5}$$

- Regressions on sub-samples of regimes $j \in \{I,\ II,\ III,\ IV\}$

Econometrics

Data and sample

- 47 AEs and EMEs during 2002m1-18m12, excl. 2007m7-09m12
- Base countries: EA for Europe, US otherwise
- CE real-time forecasts of GDP growth and CPI inflation in $\boldsymbol{x}_{it}^{e}$

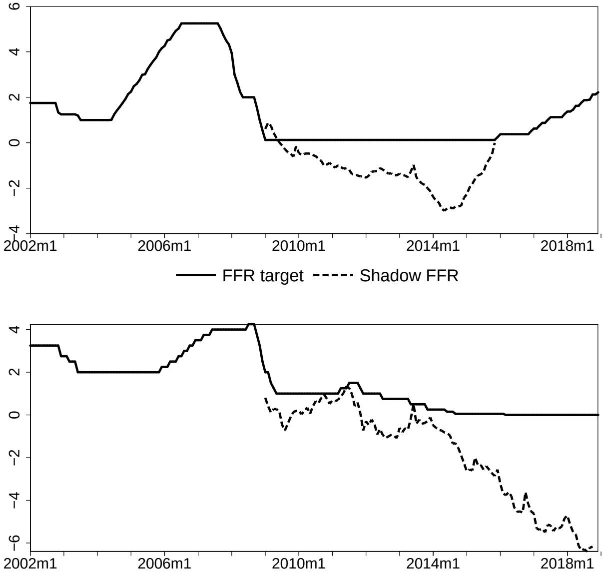
  ▸ Comparison of Consensus Economics and central bank projections
- Change in VIX and commodity prices in z_t
- I_{it}(lim. FX flexibility) based on FX regime classification of Klein and Shambaugh (2015)
- I_{it}(lim. CCs) based on CCs indicator of Fernandez et al. (2016)
- Wu and Xia (2016) shadow or conventional policy rate for $i_{i,t}^{p}$

  ▸ Details

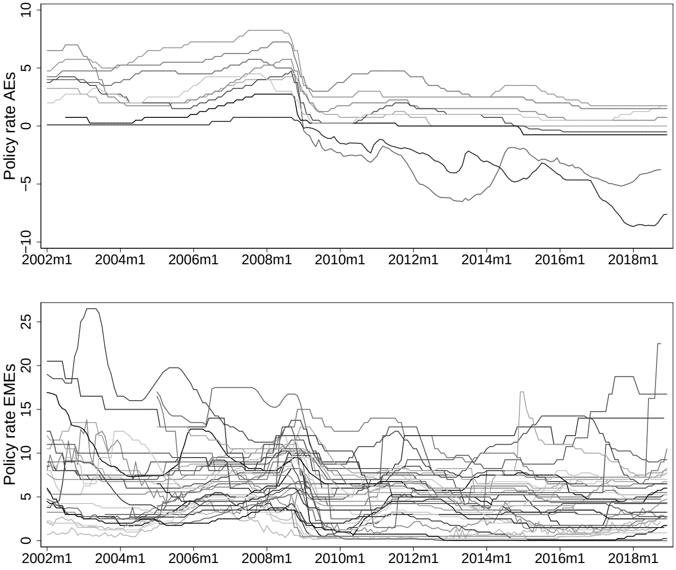
Country sample

Advanced	AUS, CAN, CHE, DNK, GBR, JPN, NOR, NZL, SWE
EM Europe	BGR, CZE, GEO, HUN, KAZ, POL, ROU, RUS, UKR
EM Asia	BGD, CHN, HKG, IDN, IND, KOR, LKA, MYS, PAK, PHL, SGP, THA, VNM
EM Latin America	BOL, BRA, CHL, COL, CRI, DOM, MEX, PAN, PER, PRY
EM Middle East and Africa	EGY, ISR, NGA, SAU, TUR, ZAF

Base-country MP rates

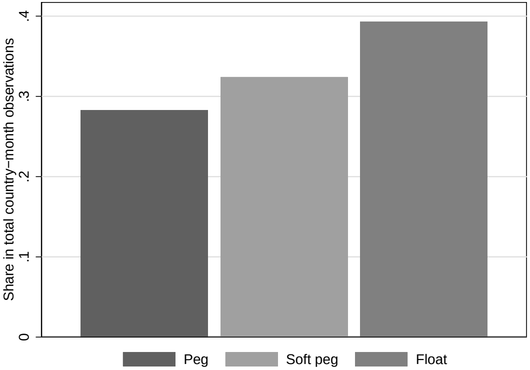


Local MP rates



FX flexibility

- We set $I_{it}(\text{lim. FX flexibility}) = 1$ in case of “peg” or “soft-peg”

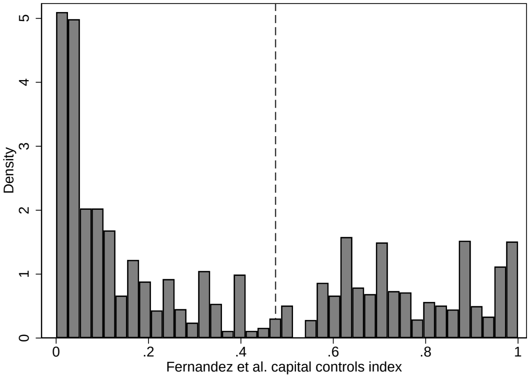


- Around 37% of observations have “extensive FX flexibility”

Details classification

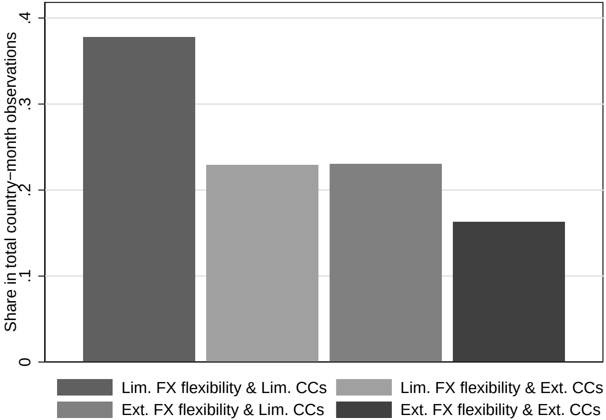
Capital controls

- We set $I_{it}(\text{lim. CCs}) = 1$ if cc_{it} smaller than 63%-percentile



- This coding of $I_{it}(\text{lim. CCs})$ implies “extensive CCs” and “extensive FX flexibility” reflect same “treatment intensity”

Policy configurations



Country details Aggregate evolution

Estimated Taylor rule

- Recall the regression

$$i^p_{it} = \chi_{ij} + \rho_j i^p_{i,t-1} + (1-\rho_j)\left(\boldsymbol{\phi}'_j \boldsymbol{x}^e_{it} + \boldsymbol{\kappa}'_j \boldsymbol{z}_t + \alpha_j i^p_{b_i,t}\right) + \nu_{it}$$

- Estimated on sub-samples of regimes $j \in \{I,\ II,\ III,\ IV\}$

  I Lim. CCs and lim. FX flexibility

  II Ext. CCs and lim. FX flexibility

  III Lim. CCs and ext. FX flexibility

  IV Ext. CCs and ext. FX flexibility

Baseline results

$$i^p_{it} = \chi_{ij} + \rho_j i^p_{i,t-1} + (1-\rho_j)\left(\boldsymbol{\phi}'_j \boldsymbol{x}^e_{it} + \boldsymbol{\kappa}'_j \boldsymbol{z}_t + \alpha_j \cdot i^p_{b_i,t}\right) + \nu_{it}$$

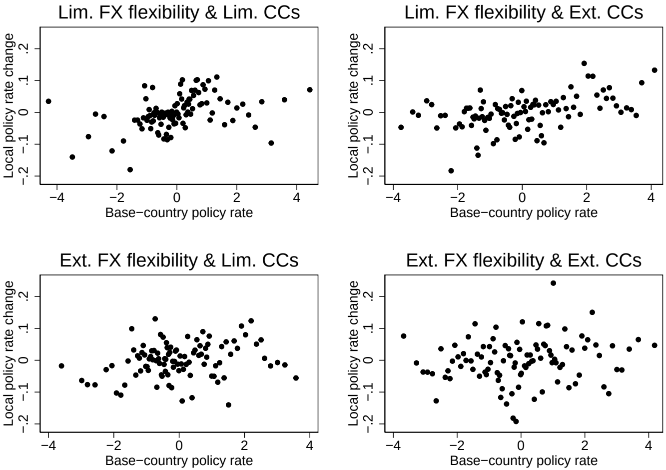
	(1) Lim. FX flex. & Lim. CCs	(2) Lim. FX flex. & Ext. CCs	(3) Ext. FX flex. & Lim. CCs	(4) Ext. FX flex. & Ext. CCs
GDP growth forecast	0.79^{***}	0.29	1.80^{**}	0.74
	(0.00)	(0.23)	(0.03)	(0.19)
Inflation forecast	0.51^{**}	0.43^{*}	1.50^{**}	1.59^{***}
	(0.05)	(0.08)	(0.05)	(0.00)
VIX	-0.07	-0.05	0.04	-0.03
	(0.11)	(0.28)	(0.48)	(0.45)
Commodity prices	9.64	2.53	24.06	-11.14
	(0.17)	(0.78)	(0.12)	(0.28)
Base-country policy rate	0.76^{***}	0.61^{***}	0.45^{**}	0.20
	(0.00)	(0.00)	(0.02)	(0.15)
R-squared (within)	0.03	0.05	0.05	0.05
Observations	2850	1671	1400	1070
Countries	27	17	25	16

p-values in parentheses

Driscoll-Kraay robust standard errors.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Conditional (bin) scatterplots



Note: The panels display conditional correlations between the base country shadow policy rate and changes in local monetary policy rates. Both variables represent residuals from regressions on all remaining right-hand side variables in the Taylor rule. The panels display bin scatter plots.

Robustness

- Cross-country parameter heterogeneity ▸ Details
  - Country-specific ARDL models, Bounds test
- UIP-based regressions ▸ Details
  - As in Shambaugh (2004), Obstfeld et al. (2005), Klein and Shambaugh (2015)
- Alternative Taylor-rule specifications ▸ Details
  - Additional arguments, different timing of CE forecasts, different frequency
- Alternative base-country MP rates ▸ Details
  - Only conventional policy rates, lagged base-country rate
- Alternative sample periods ▸ Details
  - Moving sample end and start point
- Finer gradation of FX flexibility and CCs ▸ Details
  - 3×3 instead of 2×2 matrix of regimes

The trilemma and the financial channel of FX

- Financial globalisation raised cross-border exposures, incl. in foreign currency
- Financial channel of FX: FX variation elicits variation in...
  - ...borrowing capacity of local agents through balance sheet effects
  - ...lending capacity of global lenders through risk-taking channel
- Implications for regimes with ext. FX flexibility and lim. CCs
  - Larger effects of base-country MP on local financial stability
  - Local MP may mimic base-country MP to limit FX variation
- **Although FX flexibility grants autonomy in principle, local MP may decide to not exploit it**

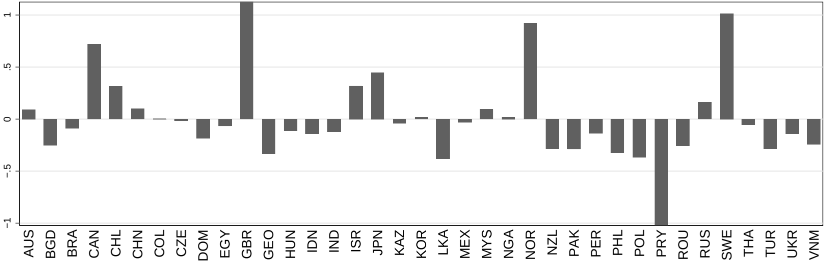
The trilemma and the financial channel of FX

- Panel regressions

$$
\begin{aligned}
i^p_{it} = & \chi_{ij} + \rho_j i_{i,t-1} \\
& + (1-\rho_j)\left[\phi_j' \boldsymbol{x}^e_{it} + \boldsymbol{\kappa}_j' \boldsymbol{z}_t + \alpha_{j1} i^p_{b_i,t} + \alpha_{j2} \cdot (i^p_{b_i,t} \times nfx_{it})\right] + \nu_{it}
\end{aligned} \tag{6}
$$

- nfx_{it} represents various versions of foreign-currency exposures
(Lane and Shambaugh, 2010; Benetrix et al., 2015)
- Data currently only available until 2012
- Run regressions for “ext. FX flexibility” (regimes **III** and **IV**)

Economies' net foreign currency exposure



The trilemma and the financial channel of FX

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base-country policy rate	0.52* (0.06)	0.40** (0.02)	0.39*** (0.01)	0.41*** (0.01)	0.37*** (0.01)	0.39*** (0.01)	0.39*** (0.01)
× NFX (excl. reserves)		−0.54** (0.03)					
× NFX (excl. reserves) × I(NFX≥ 0)			−0.48** (0.03)				
× NFX (excl. reserves) × I(NFX< 0)			−0.68** (0.05)				
× Non-debt NFX				−0.27 (0.17)	−0.35** (0.04)	−0.23 (0.19)	−0.42** (0.02)
× Debt NFX				−0.37*** (0.01)			
× Debt NFX × I(NFX≥ 0)					−0.06 (0.57)		
× Debt NFX × I(NFX< 0)					−0.53*** (0.00)		
× Base-country-currency debt NFX						−0.01 (0.92)	
× Base-country-currency debt NFX × I(NFX≥ 0)							0.48 (0.48)
× Base-country-currency debt NFX × I(NFX< 0)							−0.49** (0.02)
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× Non-base-country-currency debt NFX × I(NFX≥ 0)							−0.34 (0.37)
× Non-base-country-currency debt NFX × I(NFX< 0)							−0.40*** (0.00)
R-squared (within)	0.05	0.08	0.09	0.08	0.09	0.08	0.09
Observations	1737	1623	1623	1623	1623	1623	1623
Countries	38	36	36	36	36	36	36

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

Symmetric risks to local financial stability?

- Positive vs. negative net foreign-currency exposures
  - FX variation makes borrowing constraint bind only in case of negative foreign-currency exposures?
- Foreign-currency exposures in debt vs. non-debt instruments
  - State dependence and absence of maturity/rollover need in case of FDI and equity alleviate desire to stabilise FX?
- Exposure to base vs. non-base-country currency
  - Desire to stabilise FX only against base-country currency?
- Base-country policy rate tightening vs. loosening
  - Financial stability risks due to negative foreign-currency exposure only in case of depreciation?

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	(1)	(2)	(3)	(4)
Base-country policy rate	0.52^{*} (0.06)			
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} \geq 0)$		0.59^{**} (0.04)	0.41^{**} (0.02)	-0.03 (0.93)
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} \geq 0)$ × Net FX exposure			-0.55^{**} (0.04)	
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX \geq 0)$				0.22 (0.54)
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX < 0)$				-1.73^{*} (0.06)
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} < 0)$		-2.32 (0.20)	-0.83 (0.36)	-0.24 (0.86)
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} < 0)$ × Net FX exposure			1.26 (0.19)	
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} < 0)$ × Net FX exposure × $I(NFX \geq 0)$				1.07 (0.23)
Base-country policy rate × $I(\Delta i^{p}_{b_i,t} < 0)$ × Net FX exposure × $I(NFX < 0)$				3.03 (0.25)
R-squared (within)	0.05	0.05	0.09	0.09
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p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

$^{*}\ p < 0.1$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Robustness

- Estimated only for regime **III** Details
- Adding other reasons for fear-of-floating such as ERPT Details
- Estimated only until 2007 Details
- Using conventional policy rates Details
- Only EMEs Details
- No CHE and SGP Details

Summary

- Estimate Taylor rules
  - 47 AEs and EMEs for 2002m1-18m12, regime-specific dynamic panel data models
- Evidence for 2002-2018 consistent with trilemma
  - Both FX flexibility and CCs reduce spillovers from base-country MP
- However
  - Financial channel of FX reduces extent to which local policymakers actually exploit monetary autonomy granted by flexible FX

Base-country policy rate across local economies

		Peg	No peg
AEs	Local shadow rate available	Conventional	Shadow
	Local shadow rate not available	Conventional	Conventional
EMEs	At effective/zero LB	Conventional	Conventional
	Not at effective/zero LB	Conventional	Shadow

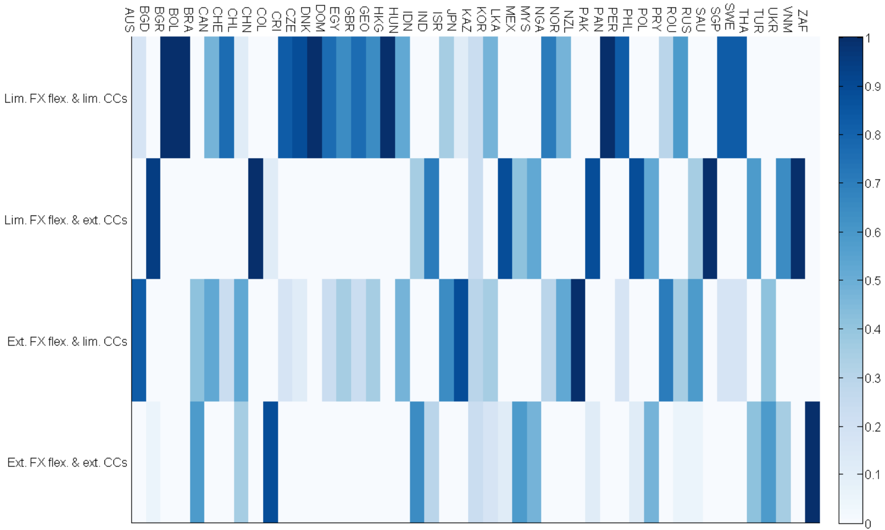
Return

Klein and Shambaugh (2015) FX regime classification

- "Peg" (see Shambaugh, 2004)
  - Bilateral exchange rate against base country stays within a $\pm 2\%$ band over the course of the year, or
  - One-time re/devaluation, but no FX change otherwise within a year
- "Soft-peg" (see Obstfeld et al., 2010)
  - A country-year observation is not classified as "peg", and
  - Bilateral exchange rate against base country stays within a $\pm 5\%$ band over the course of the year, or
  - In all months in a year FX changes by less than 2% against base country
- "Float"
  - All other observations

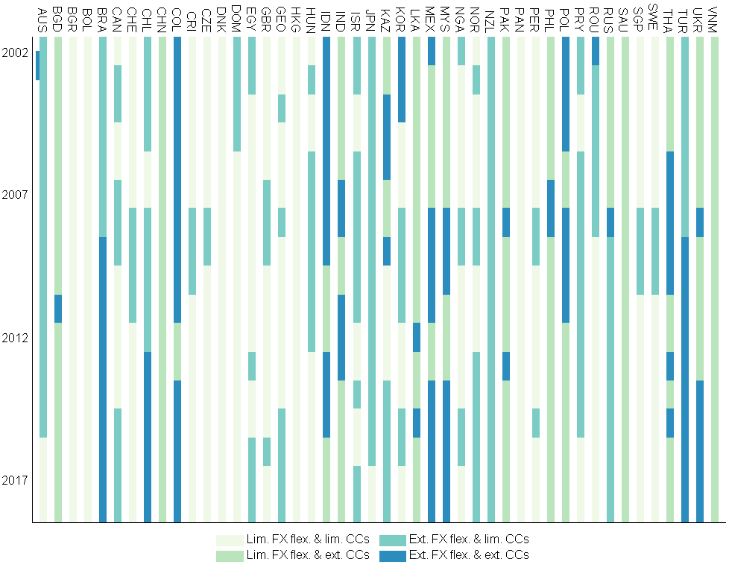
Return

Share of sample period in different regimes



Country details

▸ Return



A note on the econometrics

(Pesaran and Shin, 1999)

- If there is a LR levels relationship, inference on the parameters of interest $\widehat{\beta}_j = -\widehat{\widetilde{\beta}}_j / \widehat{\widetilde{\rho}}_j$ is **standard** in

$$\Delta i^p_{it} \quad = \quad \chi_{ij} + \widetilde{\rho}_j \cdot i_{i,t-1} + \widetilde{\boldsymbol{\phi}}_j \cdot \boldsymbol{x}^e_{it} + \widetilde{\boldsymbol{\kappa}}_j \cdot \boldsymbol{z}_t + \widetilde{\alpha}_j \cdot i^p_{b_i,t} + \nu_{it} \tag{7}$$

  regardless of the integration properties of the variables

- Notice that if $\boldsymbol{x}^e_{it}, z_{it}, i^p_{it} \sim I(1)$
  - $\widehat{\alpha}_j$ is even "super-consistent" (for given T lower $P(|\widehat{\alpha}_j - \alpha_j| > \epsilon)$)
  - Inference on $\widehat{\widetilde{\boldsymbol{\phi}}}_j$, $\widehat{\widetilde{\boldsymbol{\kappa}}}_j$, and $\widehat{\widetilde{\alpha}}_j$ is **non-standard**

- Estimating a static Taylor rule instead of (7) is risky, especially when $\boldsymbol{x}^e_{it}, z_{it}, i^p_{it} \sim I(1)$; in case of
  - co-integration: Super-consistent $\widehat{\alpha}_j$, but non-standard inference
    (FM-OLS has standard inference but is dominated by the ARDL estimator)
  - no co-integration: Spurious regression

- Using ARDL model is more efficient than VECM if $\boldsymbol{x}^e_{it}, z_{it}, i^p_{b_i,t}$ are weakly exogenous to i^p_{it} (monetary neutrality, SOE assumption)

Return

GDP growth and CPI inflation expectations x_{it}^e

- Use Consensus Economics data as CB projections not publicly available
  - at monthly frequency
  - for all economies in the sample
- Are Consensus Economics forecasts good measures of CB projections?
- For a set of publicly available CB projections, we estimate

$$x_{it}^{e,cb,h} = a_i^h + b^h \cdot x_{it}^{e,ce,h} + e_i^h, \quad h = 0, 1 \tag{8}$$

which yields

	(1) $y_{it}^{e,cb}$	(2) $y_{i,t+1}^{e,cb}$	(3) $\pi_{it}^{e,cb}$	(4) $\pi_{i,t+1}^{e,cb}$
CE forecast	0.91***	0.96***	0.85***	0.67***
	(0.00)	(0.00)	(0.00)	(0.00)
Fixed effects	Yes	Yes	Yes	Yes
R-squared	0.94	0.83	0.94	0.91
Observations	485	363	516	483

p-values in parentheses
$^{*}\ p < 0.1$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Return

Country-specific ARDL regressions

- Taylor-rule coefficients might display country heterogeneity
- Run country-specific ARDL regressions

▸ Bounds test

$$i^p_{it} = \chi_i + \rho_i i^p_{i,t-1} + (\rho_i - 1)\left(\boldsymbol{\phi}'_i \boldsymbol{x}^e_{i,t-1} + \alpha_i i^p_{b_i,t-1}\right) + \sum_{\ell=1}^{p_i} \boldsymbol{\varphi}'_{i\ell} \Delta \boldsymbol{w}_{i,t-\ell} + \nu_{it}$$

- Then run the cross-sectional regression

$$\begin{aligned}
\widehat{\alpha}_i \quad = \quad & \psi_1 \cdot \left[I_i(\text{lim. CCs}) \times I_i(\text{lim. FX flexibility})\right] \\
& + \psi_2 \cdot \left[(1 - I_i(\text{lim. CCs})) \times I_i(\text{lim. FX flexibility})\right] \\
& + \psi_3 \cdot \left[(I_i(\text{lim. CCs})) \times (1 - I_i(\text{lim. FX flexibility}))\right] \\
& + \psi_4 \cdot \left[(1 - I_i(\text{lim. CCs})) \times (1 - I_i(\text{lim. FX flexibility}))\right] + u_i
\end{aligned}$$

- We define $I_i(\cdot) \equiv I[\sum_t T^{-1} I_{it}(\cdot) > \tau]$, $\tau = 0.5$

Country-specific ARDL regressions

	(1) Baseline	(2) Lags	(3) LRR	(4) Global
I_i(Lim. FX flexibility & Lim. CCs)	0.93***	0.84***	0.92***	0.90***
	(0.00)	(0.00)	(0.00)	(0.00)
I_i(Lim. FX flexibility & Ext. CCs)	0.61**	0.54**	0.63**	0.58**
	(0.01)	(0.04)	(0.03)	(0.02)
I_i(Ext. FX flexibility & Lim. CCs)	0.42***	0.35**	0.41**	0.37**
	(0.00)	(0.04)	(0.02)	(0.03)
I_i(Ext. FX flexibility & Ext. CCs)	0.29	0.44*	0.25	0.30
	(0.15)	(0.08)	(0.21)	(0.17)
R-squared	0.82	0.75	0.82	0.78
N	46	46	19	46

p-values in parentheses

Robust standard errors.

$^{*}\ p < 0.1$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Return

UIP-based regressions

- "Classic" approach builds on UIP
  (Shambaugh, 2004; Obstfeld et al., 2005; Klein and Shambaugh, 2015)

$$i_{it} = i_{b_i,t} + E_t \Delta s_{i,t+1} + \underbrace{\pi_{it}}_{\text{Risk premium}} + \underbrace{\omega(cc_{it})}_{\text{Capital controls}} + \underbrace{\psi_{it}}_{\text{Residual}} \quad (9)$$

- Again estimate on sub-samples of regimes

$$\Delta i_{it} = \vartheta_{ij} + \delta_j \cdot \Delta i_{b_i,t} + \mu_{it} \quad (10)$$

- Advantage: No heterogeneity and model mis-specification bias
- Disadvantage: $Var(\mu_{it})$ large, and bias when $Cov(\Delta i_{b_i,t}, \mu_{it}) \neq 0$

UIP-based regressions

	(1) Lim. FX flex. & Lim. CCs	(2) Lim. FX flex. & Ext. CCs	(3) Ext. FX flex. & Lim. CCs	(4) Ext. FX flex. & Ext. CCs
Baseline	0.76 (0.00)	0.61 (0.00)	0.45 (0.02)	0.20 (0.15)
UIP	0.21 (0.00)	0.22 (0.00)	0.07 (0.25)	0.02 (0.78)
UIP with full N	0.19 (0.00)	0.15 (0.01)	0.04 (0.64)	-0.02 (0.80)
UIP money-market rate	0.38 (0.01)	0.71 (0.01)	-0.40 (0.41)	0.46 (0.02)
UIP money-market rate with full N	0.49 (0.00)	0.32 (0.06)	0.07 (0.88)	0.33 (0.21)

p-values in parentheses
Driscoll-Kraay robust standard errors.

Return

Alternative Taylor-rule specifications

- Lag and lead Consensus Economics forecasts
- Add period $t + 1$ forecasts of GDP growth and inflation
- Temporally aggregate and estimate at quarterly frequency
- Add real effective exchange rate
- No global variables

Alternative Taylor-rule specifications

	(1) Lim. FX flex. & Lim. CCs	(2) Lim. FX flex. & Ext. CCs	(3) Ext. FX flex. & Lim. CCs	(4) Ext. FX flex. & Ext. CCs
Baseline	0.76 (0.00)	0.61 (0.00)	0.45 (0.02)	0.20 (0.15)
Lagged period-t forecasts	0.77 (0.00)	0.66 (0.00)	0.41 (0.10)	0.22 (0.27)
Lead period-t forecasts	0.73 (0.00)	0.55 (0.00)	0.33 (0.15)	0.17 (0.36)
Quarterly frequency	0.23 (0.00)	0.15 (0.00)	0.17 (0.00)	0.09 (0.00)
Add REER	0.86 (0.00)	0.48 (0.00)	0.45 (0.06)	-0.06 (0.77)
No global variables	0.81 (0.00)	0.63 (0.00)	0.47 (0.01)	0.20 (0.18)

p-values in parentheses

Driscoll-Kraay robust standard errors.

▸ Return

Alternative base-country MP rates

- Response to base-country MP rate could be delayed
- Conventional MP rates instead of shadow rates
- Shadow rates for all countries
- Shadow rates only for AEs

Alternative base-country MP rates

	(1) Lim. FX flex. & Lim. CCs	(2) Lim. FX flex. & Ext. CCs	(3) Ext. FX flex. & Lim. CCs	(4) Ext. FX flex. & Ext. CCs
Baseline	0.76 (0.00)	0.61 (0.00)	0.45 (0.02)	0.20 (0.15)
Lagged base rate	0.74 (0.00)	0.60 (0.00)	0.40 (0.05)	0.20 (0.15)
Conventional policy rate for all base-country and local rates	0.86 (0.00)	0.85 (0.00)	0.33 (0.13)	0.45 (0.01)
Shadow rate as base-country rate for all local economies	0.51 (0.00)	0.57 (0.00)	0.28 (0.12)	0.21 (0.13)
Shadow rate as base-country rate only/for all AE local economies	0.90 (0.00)	0.85 (0.00)	0.70 (0.00)	0.45 (0.01)
Shadow rates only for base-countries	0.65 (0.00)	0.61 (0.00)	0.19 (0.23)	0.20 (0.15)

p-values in parentheses

Driscoll-Kraay robust standard errors.

Return

Sample period

Are results sensitive to

- the specific sample period?
- the extrapolation of CC indicators?
- dropping 2007m7-2009m12?

Alternative sample periods

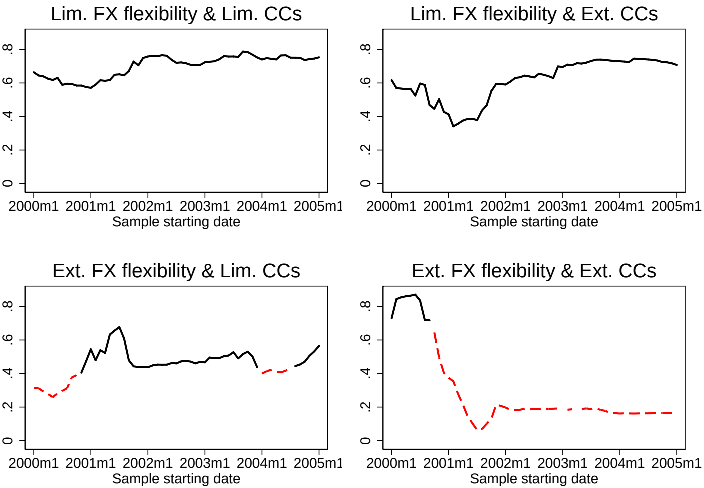
	(1) Lim. FX flex. & Lim. CCs	(2) Lim. FX flex. & Ext. CCs	(3) Ext. FX flex. & Lim. CCs	(4) Ext. FX flex. & Ext. CCs
Baseline	0.76 (0.00)	0.61 (0.00)	0.45 (0.02)	0.20 (0.15)
02-15	0.83 (0.00)	0.69 (0.00)	0.40 (0.13)	0.30 (0.02)
02-18, no gap	0.70 (0.00)	0.52 (0.00)	0.44 (0.02)	0.19 (0.11)

p-values in parentheses

Driscoll-Kraay robust standard errors.

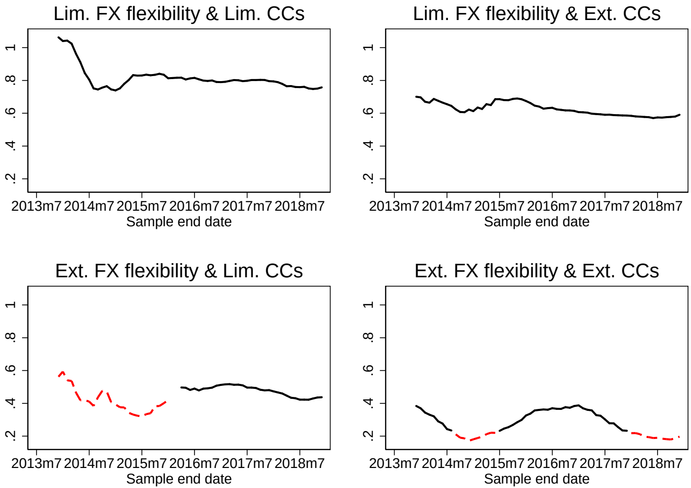
Return

Moving sample start point



Note: The panels depict the evolution of the estimate for α_j for samples starting in the point in time indicated on the horizontal axis and running until 2018m8. The black solid line indicates that the coefficient estimate is statistically significant at the 90% significance level, while the red dashed line indicates that it is not statistically significant.

Moving sample end point



Note: The panels depict the evolution of the estimate for α_j for samples ending in the point in time indicated on the horizontal axis and starting in 2002m1. The black solid line indicates that the coefficient estimate is statistically significant at the 90% significance level, while the red dashed line indicates that it is not statistically significant.

Finer gradation of FX flexibility and CCs regimes

- Estimate regression for finer, 3-way regime classification matrix

	Lim. FX flex.	Interm. FX flex.	Ext. FX flex.
Lim. CCs	**I**	**IV**	**VII**
Interm. CCs	**II**	**V**	**VIII**
Ext. CCs	**III**	**VI**	**IX**

- Percentiles p^{ℓ}_{cc} chosen so as to imply equal “treatment intensities”

Finer gradation of FX flexibility and CCs regimes

	(1) Lim. FX flexibility	(2) Interm. FX flexibility	(3) Ext. FX flexibility
Lim. CCs	1.27 (0.00)	0.73 (0.02)	0.88 (0.00)
Interm. CCs	0.50 (0.00)	0.24 (0.22)	-0.19 (0.66)
Ext. CCs	0.49 (0.00)	0.52 (0.00)	0.19 (0.23)

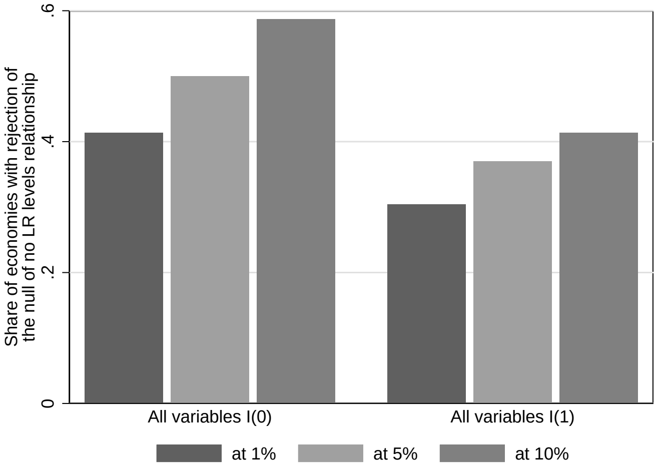
p-values in parentheses

Return

Test for long-run levels relationship

- ARDL models allow to test for long-run (LR) levels relationship
- Bounds test of Pesaran et al. (2001)
- Does not require knowledge of whether variables are $I(1)$ or $I(0)$
- Caveat: Very strong prior that there is a LR levels relationship
  - Local MP rate most plausibly related to local macro conditions and/or base-country MP
  - If test fails to reject null of no LR levels relationship, most likely due to finite sample issues
  - In Taylor rule framework, role of test for LR levels relationship plays different role than in classic UIP framework

Test for LR levels relationship



Return

Estimated only for regime **III**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base-country policy rate	0.54^{**} (0.03)	0.35^{*} (0.09)	0.32^{*} (0.06)	0.32 (0.16)	0.11 (0.60)	0.29 (0.30)	0.26 (0.34)
$\times$ NFX (excl. reserves)		-1.13^{***} (0.01)					
$\times$ NFX (excl. reserves) $\times$ I(NFX≥ 0)			-0.85^{**} (0.03)				
$\times$ NFX (excl. reserves) $\times$ I(NFX< 0)			-0.98^{*} (0.06)				
$\times$ Non-debt NFX				-0.87 (0.25)	-0.56 (0.49)	-0.76 (0.37)	-1.26^{**} (0.05)
$\times$ Debt NFX				-0.50^{*} (0.08)			
$\times$ Debt NFX $\times$ I(NFX≥ 0)					0.18 (0.71)		
$\times$ Debt NFX $\times$ I(NFX< 0)					-0.58^{*} (0.09)		
$\times$ Base-country-currency debt NFX						-0.11 (0.87)	
$\times$ Base-country-currency debt NFX $\times$ I(NFX≥ 0)							-2.28 (0.12)
$\times$ Base-country-currency debt NFX $\times$ I(NFX< 0)							-1.21^{**} (0.05)
$\times$ Non-base-country-currency debt NFX						-0.35 (0.14)	
$\times$ Non-base-country-currency debt NFX $\times$ I(NFX≥ 0)							0.56 (0.35)
$\times$ Non-base-country-currency debt NFX $\times$ I(NFX< 0)							-0.68^{**} (0.04)
R-squared (within)	0.11	0.13	0.16	0.13	0.14	0.14	0.16
Observations	783	771	771	771	771	771	771
Countries	22	21	21	21	21	21	21

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Estimated only for regime III

	(1)	(2)	(3)	(4)
Base-country policy rate	0.54^{**} (0.03)			
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$		0.56^{**} (0.02)	0.34 (0.12)	0.25 (0.40)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure			-1.15^{***} (0.01)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX \geq 0)$				-0.99 (0.14)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX < 0)$				-1.30 (0.11)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$		-0.07 (0.96)	0.35 (0.77)	1.72 (0.30)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure			0.78 (0.58)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(NFX \geq 0)$				-0.82 (0.32)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(NFX < 0)$				6.47 (0.31)
R-squared (within)	0.11	0.11	0.14	0.14
Observations	783	783	771	771
Countries	22	22	21	21

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

$^{*}\ p < 0.1$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Return

Adding ERPT as control

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base-country policy rate	0.52^{*} (0.06)	0.45^{***} (0.01)	0.44^{***} (0.00)	0.45^{***} (0.00)	0.33^{**} (0.05)	0.38^{**} (0.03)	0.42^{***} (0.01)
× NFX (excl. reserves)		-0.54^{**} (0.04)					
× NFX (excl. reserves) × I(NFX≥ 0)			-0.51^{**} (0.03)				
× NFX (excl. reserves) × I(NFX< 0)			-0.71^{*} (0.06)				
× Non-debt NFX				-0.26 (0.23)	-0.27^{*} (0.09)	-0.16 (0.40)	-0.41^{***} (0.01)
× Debt NFX				-0.36^{***} (0.01)			
× Debt NFX × I(NFX≥ 0)					-0.00 (0.98)		
× Debt NFX × I(NFX< 0)					-0.53^{***} (0.01)		
× Base-country-currency debt NFX						0.06 (0.68)	
× Base-country-currency debt NFX × I(NFX≥ 0)							0.49 (0.49)
× Base-country-currency debt NFX × I(NFX< 0)							-0.47^{**} (0.02)
× Non-base-country-currency debt NFX						-0.35^{**} (0.02)	
× Non-base-country-currency debt NFX × I(NFX≥ 0)							-0.34 (0.39)
× Non-base-country-currency debt NFX × I(NFX< 0)							-0.40^{***} (0.00)
R-squared (within)	0.05	0.08	0.09	0.08	0.08	0.08	0.09
Observations	1737	1533	1533	1533	1533	1533	1533
Countries	38	35	35	35	35	35	35

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Adding ERPT as control

	(1)	(2)	(3)	(4)
Base-country policy rate	0.52^{*} (0.06)			
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$)		0.63^{**} (0.02)	0.45^{***} (0.01)	0.02 (0.95)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$) $\times$ Net FX exposure			-0.54^{*} (0.06)	
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$) $\times$ Net FX exposure $\times$ I(NFX ≥ 0)				0.21 (0.58)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$) $\times$ Net FX exposure $\times$ I(NFX < 0)				-1.85^{**} (0.05)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$)		-2.45 (0.27)	-0.99 (0.38)	0.01 (0.99)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$) $\times$ Net FX exposure			1.50 (0.20)	
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$) $\times$ Net FX exposure $\times$ I(NFX ≥ 0)				0.96 (0.27)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$) $\times$ Net FX exposure $\times$ I(NFX < 0)				4.55^{*} (0.09)
R-squared (within)	0.05	0.05	0.08	0.09
Observations	1737	1647	1533	1533
Countries	38	37	35	35

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Return

Estimation only until 2007

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base-country policy rate	0.23 (0.28)	0.46*** (0.00)	0.50*** (0.00)	0.45*** (0.00)	0.46*** (0.00)	0.46*** (0.00)	0.42*** (0.00)
× NFX (excl. reserves)		0.05 (0.55)					
× NFX (excl. reserves) × I(NFX≥ 0)			0.03 (0.67)				
× NFX (excl. reserves) × I(NFX< 0)			−0.31 (0.11)				
× Non-debt NFX				0.11 (0.37)	0.11 (0.38)	0.11 (0.36)	−0.01 (0.90)
× Debt NFX				−0.09 (0.29)			
× Debt NFX × I(NFX≥ 0)					−0.04 (0.23)		
× Debt NFX × I(NFX< 0)					−0.11 (0.39)		
× Base-country-currency debt NFX						−0.06 (0.42)	
× Base-country-currency debt NFX × I(NFX≥ 0)							−0.07 (0.55)
× Base-country-currency debt NFX × I(NFX< 0)							−0.28*** (0.01)
× Non-base-country-currency debt NFX						−0.04 (0.68)	
× Non-base-country-currency debt NFX × I(NFX≥ 0)							0.06 (0.69)
× Non-base-country-currency debt NFX × I(NFX< 0)							−0.18* (0.09)
R-squared (within)	0.07	0.10	0.10	0.10	0.10	0.10	0.11
Observations	997	931	931	931	931	931	931
Countries	29	28	28	28	28	28	28

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Estimation only until 2007

	(1)	(2)	(3)	(4)
Base-country policy rate	0.23 (0.28)			
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$		0.19 (0.42)	0.45^{***} (0.00)	0.19 (0.45)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure			0.07 (0.49)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX \geq 0)$				0.24 (0.14)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX < 0)$				−0.62 (0.15)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$		-2.58^{*} (0.06)	-1.80^{*} (0.08)	−1.83 (0.14)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure			0.18 (0.73)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(NFX \geq 0)$				0.28 (0.68)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(NFX < 0)$				−0.41 (0.67)
R-squared (within)	0.07	0.10	0.12	0.13
Observations	997	997	931	931
Countries	29	29	28	28

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Return

Using conventional policy rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base-country policy rate	0.56^{**} (0.04)	0.32^{*} (0.06)	0.30^{**} (0.05)	0.38^{***} (0.01)	0.31^{**} (0.05)	0.37^{**} (0.02)	0.33^{**} (0.05)
× NFX (excl. reserves)		-0.77^{***} (0.00)					
× NFX (excl. reserves) × I(NFX≥ 0)			-0.73^{***} (0.00)				
× NFX (excl. reserves) × I(NFX< 0)			-0.77^{***} (0.01)				
× Non-debt NFX				-0.23 (0.17)	-0.32^{*} (0.07)	-0.23 (0.17)	-0.36^{**} (0.04)
× Debt NFX				-0.54^{***} (0.00)			
× Debt NFX × I(NFX≥ 0)					-0.36^{***} (0.00)		
× Debt NFX × I(NFX< 0)					-0.47^{***} (0.00)		
× Base-country-currency debt NFX						-0.23 (0.16)	
× Base-country-currency debt NFX × I(NFX≥ 0)							0.05 (0.94)
× Base-country-currency debt NFX × I(NFX< 0)							-0.48^{**} (0.02)
× Non-base-country-currency debt NFX						-0.37^{***} (0.01)	
× Non-base-country-currency debt NFX × I(NFX≥ 0)							-0.41 (0.33)
× Non-base-country-currency debt NFX × I(NFX< 0)							-0.40^{***} (0.00)
R-squared (within)	0.05	0.08	0.10	0.09	0.09	0.09	0.09
Observations	1736	1622	1622	1622	1622	1622	1622
Countries	38	36	36	36	36	36	36

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Using conventional policy rates

	(1)	(2)	(3)	(4)
Base-country policy rate	0.56^{**} (0.04)			
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$		0.59^{**} (0.04)	0.33^{*} (0.06)	-0.11 (0.73)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure			-0.80^{***} (0.00)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(\text{NFX} \geq 0)$				0.01 (0.98)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(\text{NFX} < 0)$				-2.01^{***} (0.01)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$		-3.88^{*} (0.08)	-2.04^{*} (0.06)	-1.87 (0.19)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure			0.12 (0.85)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(\text{NFX} \geq 0)$				0.57 (0.36)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(\text{NFX} < 0)$				0.50 (0.83)
R-squared (within)	0.05	0.06	0.09	0.10
Observations	1736	1736	1622	1622
Countries	38	38	36	36

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Return

Only EMEs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base-country policy rate	0.31 (0.28)	0.28* (0.08)	0.27* (0.08)	0.31* (0.07)	0.27* (0.09)	0.26 (0.13)	0.63 (0.16)
× NFX (excl. reserves)		−0.74** (0.03)					
× NFX (excl. reserves) × I(NFX≥ 0)			−0.77** (0.04)				
× NFX (excl. reserves) × I(NFX< 0)			−0.61** (0.05)				
× Non-debt NFX				−0.42 (0.14)	−0.49* (0.09)	−0.57** (0.05)	−0.17 (0.64)
× Debt NFX				−0.52** (0.02)			
× Debt NFX × I(NFX≥ 0)					−1.10*** (0.01)		
× Debt NFX × I(NFX< 0)					−0.64** (0.05)		
× Base-country-currency debt NFX						−0.56** (0.04)	
× Base-country-currency debt NFX × I(NFX≥ 0)							2.78 (0.46)
× Base-country-currency debt NFX × I(NFX< 0)							−0.53*** (0.00)
× Non-base-country-currency debt NFX						−0.10 (0.56)	
× Non-base-country-currency debt NFX × I(NFX≥ 0)							−0.24 (0.29)
× Non-base-country-currency debt NFX × I(NFX< 0)							−0.01 (0.98)
R-squared (within)	0.05	0.10	0.11	0.10	0.10	0.10	0.11
Observations	1350	1236	1236	1236	1236	1236	1236
Countries	30	28	28	28	28	28	28

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Only EMEs

	(1)	(2)	(3)	(4)
Base-country policy rate	0.31 (0.28)			
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$		0.35 (0.23)	0.29^{*} (0.08)	−0.21 (0.60)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure			-0.77^{**} (0.03)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX \geq 0)$				−0.04 (0.92)
Base-country policy rate × $I(\Delta i^p_{b_i,t} \geq 0)$ × Net FX exposure × $I(NFX < 0)$				-2.34^{**} (0.05)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$		-3.83^{*} (0.09)	−1.37 (0.32)	−3.22 (0.11)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure			0.67 (0.70)	
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(NFX \geq 0)$				20.18^{**} (0.05)
Base-country policy rate × $I(\Delta i^p_{b_i,t} < 0)$ × Net FX exposure × $I(NFX < 0)$				−2.77 (0.27)
R-squared (within)	0.05	0.06	0.11	0.12
Observations	1350	1350	1236	1236
Countries	30	30	28	28

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

$^{*}\ p < 0.1$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Return

No CHE and SGP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Base-country policy rate	0.52^{*} (0.06)	0.49^{***} (0.00)	0.48^{***} (0.00)	0.50^{***} (0.00)	0.44^{***} (0.00)	0.46^{***} (0.00)	0.49^{***} (0.00)
× NFX (excl. reserves)		-0.29^{**} (0.03)					
× NFX (excl. reserves) × I(NFX≥ 0)			-0.20^{**} (0.02)				
× NFX (excl. reserves) × I(NFX< 0)			-0.69^{**} (0.05)				
× Non-debt NFX				-0.17 (0.17)	-0.21^{**} (0.05)	-0.15 (0.19)	-0.21^{**} (0.05)
× Debt NFX				-0.30^{***} (0.01)			
× Debt NFX × I(NFX≥ 0)					-0.02 (0.53)		
× Debt NFX × I(NFX< 0)					-0.52^{***} (0.00)		
× Base-country-currency debt NFX						-0.02 (0.84)	
× Base-country-currency debt NFX × I(NFX≥ 0)							0.19 (0.25)
× Base-country-currency debt NFX × I(NFX< 0)							-0.54^{***} (0.01)
× Non-base-country-currency debt NFX						-0.30^{***} (0.01)	
× Non-base-country-currency debt NFX × I(NFX≥ 0)							-0.32 (0.19)
× Non-base-country-currency debt NFX × I(NFX< 0)							-0.37^{***} (0.00)
R-squared (within)	0.05	0.08	0.09	0.08	0.09	0.08	0.10
Observations	1701	1587	1587	1587	1587	1587	1587
Countries	36	34	34	34	34	34	34

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

No CHE and SGP

	(1)	(2)	(3)	(4)
Base-country policy rate	0.52^{*} (0.06)			
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$)		0.59^{**} (0.04)	0.50^{***} (0.00)	-0.08 (0.84)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$) $\times$ Net FX exposure			-0.30^{**} (0.04)	
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$) $\times$ Net FX exposure $\times$ I(NFX ≥ 0)				0.14 (0.48)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} \geq 0$) $\times$ Net FX exposure $\times$ I(NFX < 0)				-1.29^{**} (0.05)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$)		-2.42 (0.19)	-0.96 (0.30)	-1.33 (0.45)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$) $\times$ Net FX exposure			1.04 (0.28)	
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$) $\times$ Net FX exposure $\times$ I(NFX ≥ 0)				1.31 (0.40)
Base-country policy rate $\times$ I($\Delta i^{p}_{b_i,t} < 0$) $\times$ Net FX exposure $\times$ I(NFX < 0)				0.38 (0.79)
R-squared (within)	0.05	0.05	0.09	0.10
Observations	1701	1701	1587	1587
Countries	36	36	34	34

p-values in parentheses

Driscoll-Kraay robust standard errors. Coefficient estimates of Taylor-rule fundamentals not reported.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Return

Estimating FX pass-through to local CPI

- For long-run FX pass-through, following Hausmann et al. (2001) we estimate

$$\Delta p_{it} = \chi_i + \rho_i(p_{it} - \gamma_i s_{it} - \eta_i p_t^{comm}) + \sum_{j=1}^{p_i} \phi_{ij}' \Delta \boldsymbol{w}_{it} + \nu_{it} \tag{11}$$

where $\widehat{ERPT}_i^{LR} \equiv \widehat{\gamma}_i$ is the long-run pass-through estimate

- Following Campa and Goldberg (2005) we estimate

$$\Delta p_{it} = \chi_i + \sum_{j=1}^{p_i} \sigma_{ij} \Delta s_{it} + \sum_{j=1}^{q_i} \eta_{ij} \Delta p_t^{comm} + \nu_{it} \tag{12}$$

where $\widehat{ERPT}_i^{SR} \equiv \sum_{j=1}^{3} \widehat{\sigma}_{ij}$ is the short-run pass-through estimate

Return

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