



Direct and Spillover Effects of Unconventional Monetary and Exchange Rate Policies

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Objectives

- Measure direct effects of FX intervention and unconventional monetary policy on current account.
- Examine spillovers of FXI and UMP on current accounts in other countries.
- Examine spillovers of US UMP in daily financial data.
- Build theory model to interpret results and draw policy conclusions.

Annual Data Results

- Direct effects on current accounts importantly influenced by capital mobility
 - \$1 of FXI raises CA \$0.75 w/ low mobility
 - \$1 of FXI raises CA \$0.20 w/ high mobility
 - \$1 of FX stock: CA up \$0.04 w/ high mobility
 - \$1 of QE raises CA \$0.25 w/ low mobility
 - \$1 of QE: no effect on CA w/high mobility
- Spillovers of FXI flow to countries with larger cross-border financial links

Daily Data Results

- “Good news” about US economy
 - Raises foreign bond yields
 - Raises foreign stock prices
 - Depreciates foreign exchange rates
- Tighter than expected US monetary policy
 - Has similar but smaller effects
- Bond spillovers larger than exchange rate spillovers

Theoretical Results

- Model with imperfect asset substitution supports annual results on direct effects of FX intervention and UMP
- Small effects of UMP on ERs in daily data imply small effects on CA
- FXI and UMP are useful additional tools
 - allow policy to target multiple objectives
 - peripheral countries can counteract spillovers from core countries

Annual Regressions

$$\begin{aligned} \frac{CAX_{it}}{GDP_{it}} &= \alpha_1 \left(\frac{NOF_{it}}{GDP_{it}} \right) + \alpha_2 \left(\frac{NOF_{it} \times MOB_{it-1}}{GDP_{it}} \right) \\ &+ \beta_1 \left(\frac{NOA_{it-1}}{GDP_{it-1}} \right) + \beta_2 \left(\frac{NOA_{it-1} \times MOB_{it-1}}{GDP_{it-1}} \right) \\ &+ \gamma_1 \left(\frac{QE_{it-1}}{GDP_{it-1}} \right) + \gamma_2 \left(\frac{QE_{it-1} \times MOB_{it-1}}{GDP_{it-1}} \right) + \delta_1 SPILL_{it} \\ &+ \mu_1 AUX_{it} + \mu_2 (AUX_{it} \times MOB_{it-1}) + \theta_t year_t \\ \frac{NPFX_{it}}{GDP_{it}} &= (\alpha_1 - 1) \left(\frac{NOF_{it}}{GDP_{it}} \right) + \dots \end{aligned}$$

CAX = NPFX + NOF + errors and omissions

CAX: current account excluding net investment income

NPFX: net private financial flows ex. net investment income

NOF: net official financial flows (includes FX intervention)

Instruments for FX Intervention (NOF)

- Endogenous response of FX intervention to exchange rate biases coefficient:
 - Upwards if current account shock
 - Downwards if financial account shock
- We use non-reserve official flows
 - SWF flows, development loans
 - Assume only reserves respond to ER
- Also crisis dummy in prior 3 years

First-Stage Results

	NOF	NOF x MOB
Nonreserve Flows	0.87***	0.02
Nonres. Flows x MOB	-0.13	0.72***
Lagged Crisis	.004	-.002
Lagged Crisis x MOB	.008	.015**
R ²	.59	.60
F-test (pval)	.000	.000
R ² without instruments	.44	.49

Annual CA Regressions

	Baseline	OLS	Alt Instr	Weighted	Robust	Fixed	Flexible	Open	Closed
Fiscal Balance	0.15**	0.18***	0.02	0.04	0.04	0.12	0.20**	0.38***	-0.01
Interaction w Mobility	0.44***	0.36***	0.55***	0.35***	0.41***	0.58***	0.29**	0.24	0.29**
FX Intervention (NOF)	0.75***	0.67***	0.97***	0.77***	0.80***	0.83***	0.65***	0.69*	0.78
Interaction w Mobility	-0.57**	-0.41***	-0.73**	-0.41**	-0.75***	-0.98**	-0.36	-0.52***	-0.54***
Foreign Off. Assets (NOA)	-0.01	-0.01	-0.01	-0.01	-0.02**	0.00	0.02	-0.02	0.01
Interaction w Mobility	0.05**	0.05***	0.05**	0.08***	0.07***	0.01	0.03	0.05*	-0.05*
CB Domestic Assets (QE)	0.24**	0.25**	0.27**	0.22**	0.10	0.09	0.20	0.41**	0.09
Interaction w Mobility	-0.26	-0.28*	-0.30	-0.18	-0.18	0.01	-0.23	-0.50	0.00
World NOF Spillover (SPILL)	-21.4***	-21.5***	-21.2***	1.7	-11.8***	-16.8*	-14.9***	-39.2***	-0.5
R-squared	0.45	0.37	0.46	0.64	0.50	0.52	0.46	0.51	0.43
Observations	1745	1755	1699	1745	1745	650	1095	873	872

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

Source: Gagnon, Bayoumi, Londono, Saborowski, and Sapriza (forthcoming).

Figure 2.6. Energy Exporters with SWF=Fiscal

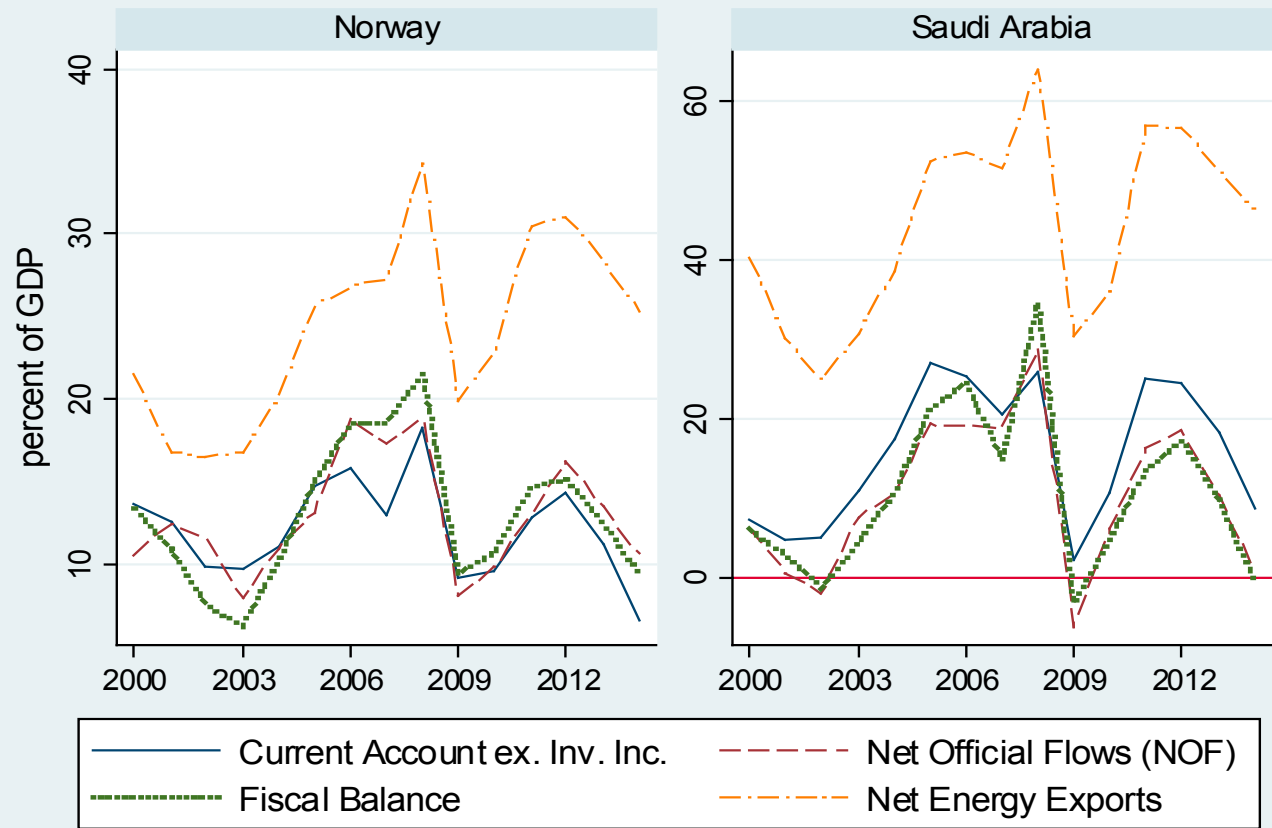


Figure 2.6. Energy Exporters with Significant NOF

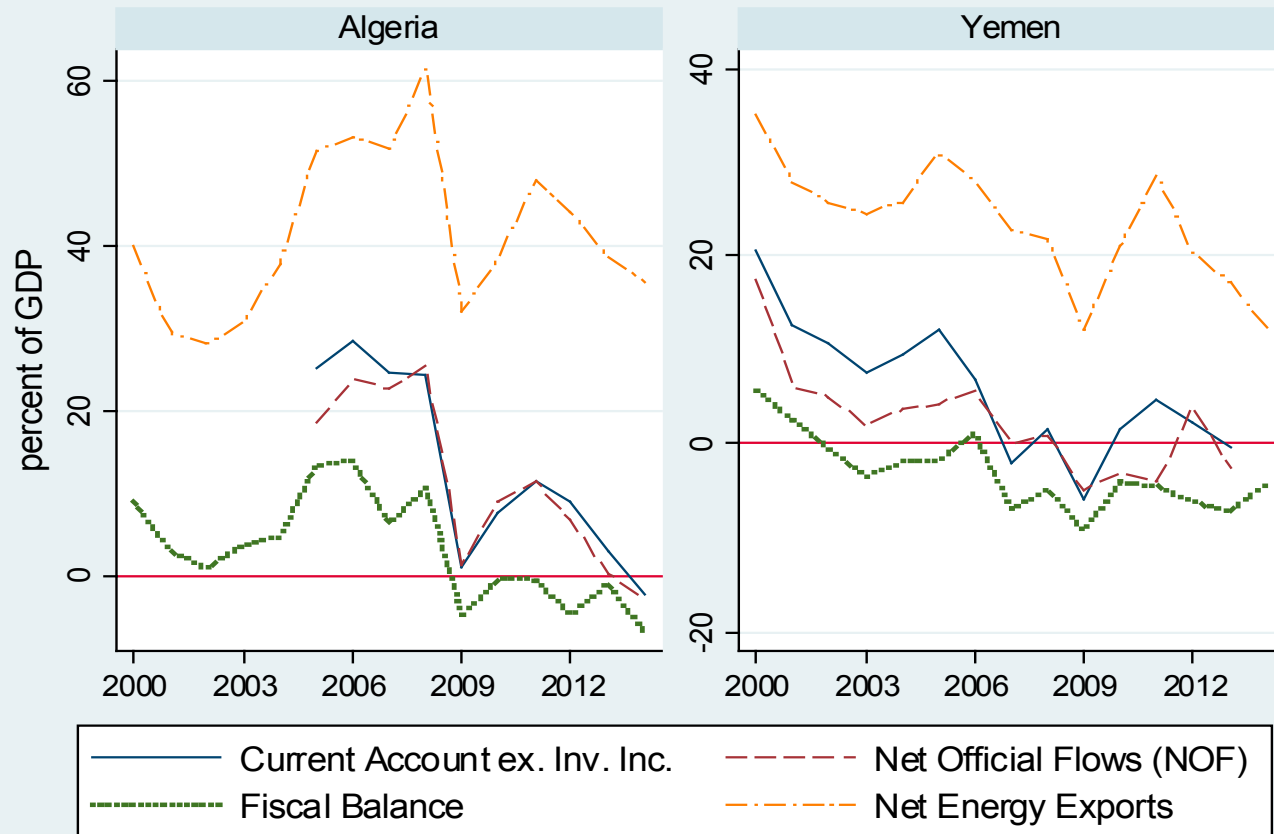


Figure 2.6. Energy Exporters with Occasional NOF

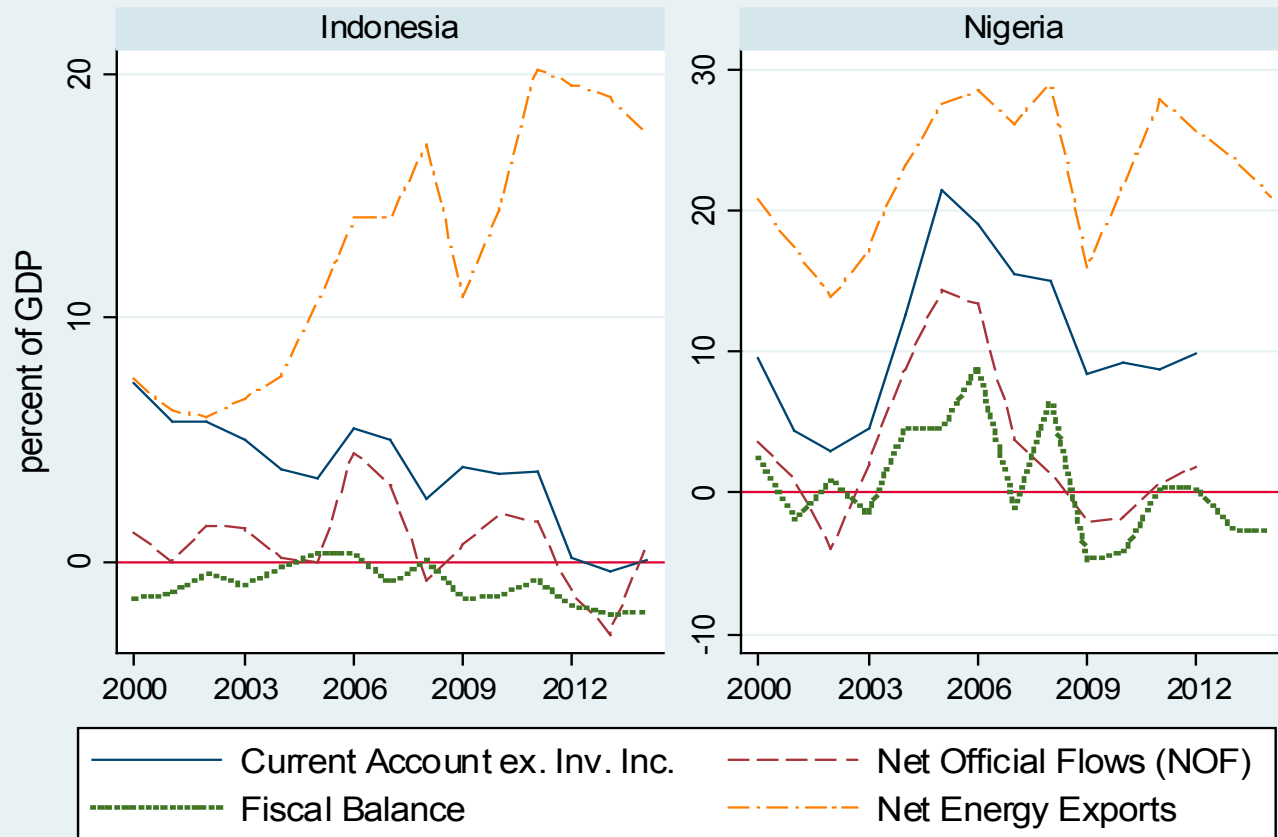
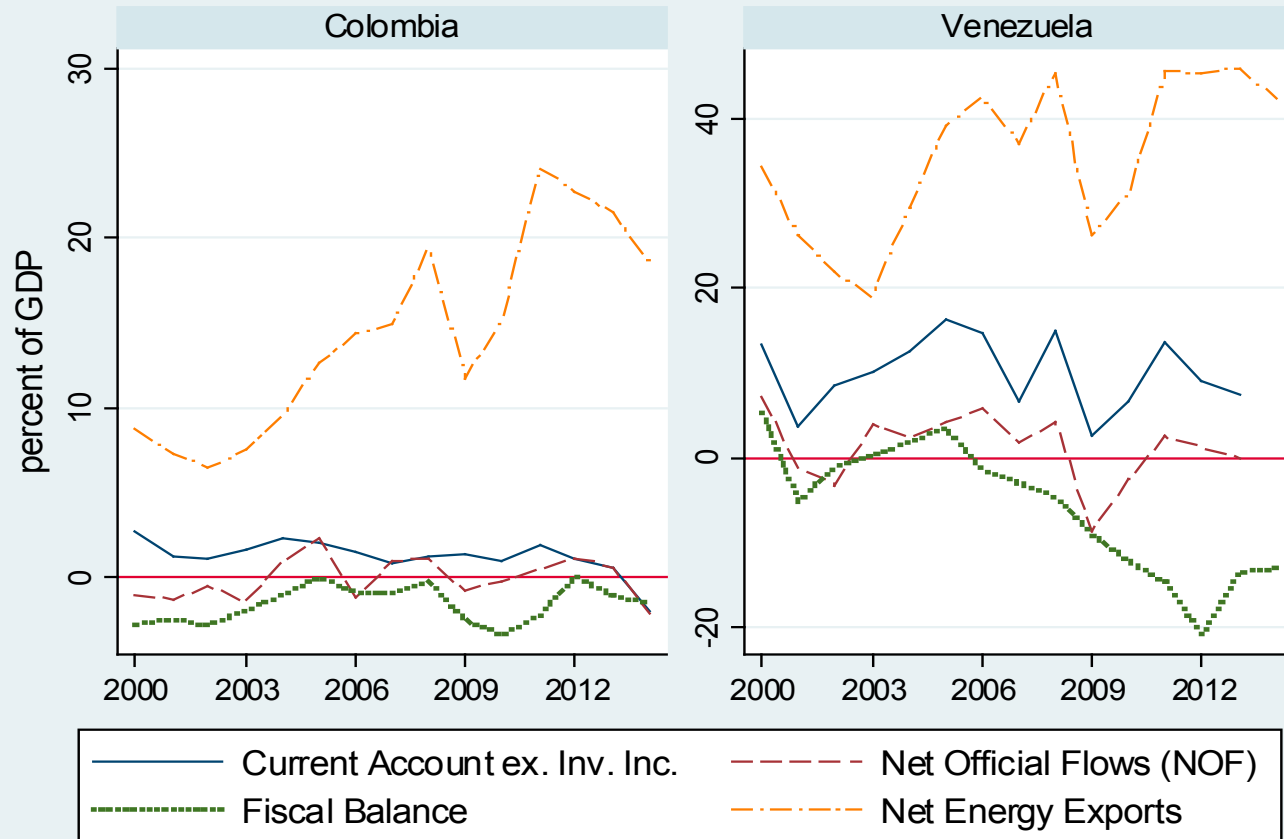


Figure 2.7. Energy Exporters with Small NOF



Spillovers of US UMP in Daily Data

- Regression Nov 2008 – Jul 2015
 - US UMP period
 - 20 advanced and 20 emerging economies
- X is foreign variable
- Y is US 10-year Treasury yield
- FOMC denotes policy announcement day

$$\Delta X_t = \alpha + (\beta + \gamma FOMC_t) \Delta Y_t$$

Results

- Systematic US UMP associated with large spillovers
 - “Good news” for US is good news for ROW
- Surprise US UMP (policy shock) has small spillovers
- Relatively large bond spillovers
 - high substitutability across bond markets, or
 - monetary policy co-movements

Model with Imperfect Asset Substitution

- One-period model
 - Return to steady state next period
 - Period is 1 to 5 years
- Short-term and long-term bonds in domestic and foreign currency
 - Bond demand depends on own return and relative returns: across maturity and across currency
 - Arbitrage leans against, but does not eliminate, deviations from interest rate parity and pure expectations term structure

Model Implications

- FX intervention has larger effect on current account when capital mobility is low
- QE has small and ambiguous effect on current account, regardless of mobility
- Foreign interest rates and activity both have positive effects on the CA
- All of the above are true with both flexible and fixed exchange rates

Model Implications

- Effects on GDP depend importantly on the exchange rate regime and on capital mobility
 - QE spillovers stronger under fixed ERs
 - QE spillovers stronger with capital mobility
- FX intervention and QE can fully insulate economy from effects of foreign FX intervention and foreign monetary policy, including foreign QE