

When is foreign exchange intervention effective? Evidence from 33 countries

Marcel Fratzscher^{1,5} Oliver Gloede² Lukas Menkhoff¹
Lucio Sarno^{3,5} Tobias Stöhr^{1,4,6}

¹German Institute for Economic Research (DIW)

²University of Hannover ³Cass Business School

⁴Kiel Institute for the World Economy (IfW)

⁵CEPR ⁶IZA

December 8, 2017 - BOI-SNB-CEPR Conference, Jerusalem

Disclaimer: The views expressed in this paper are those of the authors and do not necessarily represent those of the employing institutions.

Motivation

Foreign exchange reserves are at their highest level ever (absolute & relative to GDP)

FX interventions (FXI) are widely used and relevant policy tool

- Recent studies claim that interventions may be welfare enhancing (Gabaix and Maggiori, 2015)
- Central bankers mostly confident (Neely, 2008)
- IMF changing policy towards FXI

Question: Is FXI really effective and if so, under which circumstances?

Doubts on FXI effectiveness

1. Central bank has to intervene against market outcomes in case of floating regime
2. FXI take place in large financial markets.
 - FX market largest financial market by turnover
 - Daily FX turnover of USD 5,100 bn versus USD 11,000 bn total FX reserves (concentrated on a few countries)
3. Unclear what FX intervention can signal

Contribution to analyzing FXI effectiveness

Previous studies

- Available data covers few countries or have low frequency
- Using FXI approximations
- Comparable across countries

→ Get clean daily data, ask central banks (survey request in 2011/12 was based at ECB)

This paper

- Large panel covering various economic and financial environments
- Advanced and EMDE
- Different ER-regimes
- Different levels of transparency
- Role of oral interventions and monetary policy

Preview of findings

- Main finding: Sterilized FXI can be an **effective policy tool**
- Crucial to distinguish between ER regimes and FXI objectives
 - Smoothing of exchange rates works in 80-100% of cases
 - Stabilization of exchange rates works in 80%+ cases in narrow band regimes and decreases in times of high volatility
 - Moving the exchange rate (event, direction criteria) has success rate of 55-60% and increases with size of FXI and if exchange rate is misaligned or trends in the same direction
- Oral interventions matter: supporting free floaters, particularly in turbulent times

Origin of the data

Data sources

- Data: daily sterilized FX-interventions
- Data for 11 countries from public sources
- Other countries: in particular members of BIS committee where FXI may occur, 27 approached, 22 provided data
- Provided data are strictly confidential, i.e. cannot analyze single countries
- $11 + 22 = 33$ countries

Representativeness?

- Concern 1: self-selection of countries with favorable experiences
→ however, anonymous
- Concern 2: self-selection of those who intervene publicly (and not secretly)
→ possible but we observe many secret interventions, allowing to examine their effect

Data

Daily interventions (1995-2011, unbalanced panel)

- Mostly confidential data directly from central banks
- 33 central banks: ARG, AUS, AZE, BOL, CAN, CHL, COL, CRI, HRV, CZE, DNK, EMU, GEO, HKG, ISL, ISR, JPN, KEN, KGS, MEX, MLD, NZL, NOR, PER, POL, SVK, ZAR, SWE, SUI, TRK, UK, US, VEN
- 113,842 trading days

Stylized Facts #1

Indicator	Total	Free Floaters	Broad bands	Narrow Bands	Other
Number of country-regime observations ^a	43	6	14	17	6
Trading days covered	113,842	19,330	41,604	42,961	9,947
Share of days with FX intervention	19.1%	7.3%	9.3%	33.6%	20.7%
Share of these with FX purchase	76.1%	94.8%	73.5%	73.2%	63.6%
Share of these with FX sale	23.9%	5.2%	26.5%	26.8%	36.4%
FX purchasing episodes ^c	2,388	70	551	1,491	276
FX sale episodes ^c	2,161	25	511	1,402	223
Average length of episode in days	4.5	9.2	3.5	4.8	4.4

- Foreign exchange purchases are far more common than sales
- Currency bands more likely to sell foreign exchange
- 16 countries only observed buying or selling but not both
- Most FXI come as episodes \Rightarrow Defining FXI events as 10-day events (or changes in FXI side)

Stylized Facts #2

Indicator	Total	Free Floaters	Broad bands	Narrow Bands	Other
Number of country-regime observations*	43	6	14	17	6
Average daily volume on intervention day in million USD	44.3	59.2	42.7	27.1	157.7
Average daily volume of FX purchases in million USD	44.4	52.7	45.8	24.9	190.6
Average daily volume of FX sales in million USD	44.1	177.1	34.2	33.3	100.2
Average daily intervention size as share of GDP	0.05%	0.02%	0.03%	0.05%	0.10%
Average daily intervention size (share dly traded fx volume)	4.6%	1.0%	5.2%	5.1%	6.5%
Share of intervention episodes leaning with the wind	35.5%	25.3%	47.1%	33.3%	25.6%
Share of intervention episodes towards the fundamental	48.0%	40.0%	48.8%	48.2%	46.6%
Trading days covered in turbulent times	5,638	949	1,975	2,178	536
Share of days with FX intervention in turbulent times	22.5%	2.7%	9.2%	43.5%	20.7%

Small majority of interventions

- leans against the wind
- points away from fundamental

Interventions in emerging markets far more frequent but smaller in both absolute and relative size

Measuring Effectiveness: Episodes

Start in t_{start} , last day t_{end} determined using 10-day horizon

Four Success Criteria

"Event"	Does the exchange rate move in the intended direction during the episode?
"Direction"	As above, but assessed in $t_{end} + 5$
"Smoothing"	Is the slope of the exchange rate development less steep than before the intervention ($t_{start} - 6$ to $t_{start} - 1$, t_{start} to $t_{end} + 5$)?
"Stabilization"	Does the intervention stay until $t_{end} + 10$ always within a two percent band around the exchange rate on day $t_{start} - 1$

Event study approach:

$$c_{ir} = \theta_r + \gamma X_i + \epsilon_{ir}$$

Correlation between success criteria

Success criterion	event	direction	smoothing	stabilize
event	1.00			
direction	0.52	1.00		
smoothing	0.31	0.45	1.00	
stabilization	-0.08	-0.07	0.05	1.00

Notes: The event criterion defines success as movement of the exchange rate during the intervention that is consistent with the intervention's effect on the exchange rate. The direction extends the relevant period by one week after the intervention episode. The smoothing criterion counts a reduction in the absolute slope during the event and for the next week compared to the week before the event as success. The sample size is lower because it is only defined for interventions against the one week trend. The stabilization criterion counts success as the exchange rate staying within a 2 percent band during the event and during the next 2 weeks.

Unconditional success rates by regime

Panel A: Freely floating

Criterion	(1) event	(2) direction	(3) smoothing	(4) stabilization
Intervention episodes	61.1% [†]	60.0% [†]	88.3% [†]	21.1%
Placebo rates	48.1%	48.0%	40.1%	29.1% [†]
Actual events	95	95	77	95

Panel B: Broad band

Criterion	(5) event	(6) direction	(7) smoothing	(8) stabilization
Intervention episodes	48.3%	48.7%	79.1% [†]	34.8%
Placebo rates	49.1%	49.1%	39.6%	49.5% [†]
Actual events	1,062	1,062	561	1,062

Panel C: Narrow band

Criterion	(9) event	(10) direction	(11) smoothing	(12) stabilization
Intervention episodes	28.2%	32.6%	78.1% [†]	84.0% [†]
Placebo rates	38.9% [†]	40.4% [†]	34.2%	76.8%
Actual events	2,893	2,893	1,010	2,893

Determinants of effectiveness

Criterion	(1) Event	(2) Direction	(3) Smoothing	(4) Stabilization
<i>Regime-specific intercepts</i>				
Free Floater	0.532*** (0.053)	0.514*** (0.054)	0.798*** (0.043)	0.435*** (0.044)
Broad Band	0.414*** (0.024)	0.399*** (0.025)	0.712*** (0.028)	0.609*** (0.024)
Narrow Band	0.213*** (0.012)	0.246*** (0.012)	0.745*** (0.018)	0.949*** (0.009)
Other regime	0.133*** (0.021)	0.201*** (0.023)	0.835*** (0.031)	1.004*** (0.013)
<i>Intervention characteristics</i>				
Average daily intervention size in % of GDP	0.330*** (0.104)	0.318*** (0.106)	0.115 (0.077)	0.104 (0.064)
Intervention with prior 2 weeks' trend (0/1)	0.099*** (0.015)	0.139*** (0.015)	-0.065** (0.028)	0.011 (0.012)
Intervention towards fundamental (based on distance to 3Y-MA)	0.004*** (0.001)	0.003*** (0.001)	0.001 (0.001)	-0.004*** (0.001)
Share of max. local volatility	0.004 (0.041)	0.009 (0.043)	0.215*** (0.050)	-0.597*** (0.039)
Observations	4,549	4,549	1,787	4,549
Adj. R-squared	0.373	0.399	0.800	0.810

Adding the analysis of oral interventions

Motivation to consider oral FXI

- Communication generally plays an important role in policy making
- This is particularly true for central bank communication (directed also at financial markets)
- Evidence that oral interventions can influence exchange rates (Fratzscher, 2008)

Policy issues

- Secret interventions? We test whether FX interventions remain unnoticed in the press.
 - Effect of oral intervention? We identify them via press reports
- Careful analysis of the database Factiva with respective keywords and case-by-case inspection

News data coverage and affected events by country-regime combination

News indicator	Total	Free Floaters	Broad Band	Narrow Band	Other
Number of affected events	4,549	95	1,062	2,893	499
Unnoticed intervention (0/1)	94.3%	62.1%	94.2%	94.8%	97.4%
Rumor of intervention (0/1)	4.6%	25.3%	5.3%	3.9%	2.6%
Confirmation of intervention (0/1)	1.8%	24.2%	1.0%	1.5%	0.8%
Any oral intervention (0/1)	51.9%	96.8%	99.6%	30.9%	63.5%

Notes: Noticing and not noticing is based on the criterion that a correct rumor or a confirmation by the central bank occur regarding at least one specific day of an episode. Retrospective confirmation is not counted here. Oral interventions are comments by the central bank or minister of finance that indicate increased or decreased likelihood of intervention or talking the currency into a particular direction.

Rumors and oral intervention

Central banks' guidance is helpful when moving the exchange rate is the target

- Interventions that are not noticed by the market are far less effective at moving the exchange rate (signaling effect)
- Official confirmations provide a significantly more effective signal than mere rumors in the short run
- Oral interventions (informing about future intervention policy) are highly effective
- Particularly so in turbulent times [▶ Tables](#)
- Oral interventions are particularly effective if central bank has not pre-announced their regime. [▶ Table](#)
→ Transparency seems to be key

Sterilization and monetary policy

- Using only data on sterilized intervention
- We reassured ourselves by talking to central banks if in doubt
- Analyzing relation between FXI and traditional monetary policy:
 - No effect on monetary base
 - No effect on domestic market interest rates
- FXI policy seems to be independent of traditional monetary policy [▶ Table](#)

Addressing Endogeneity

Issue: Central banks decide about the right timing → success likely to be biased towards zero

- Two approaches to account for this in literature:
 - 1. FX counterfactual, 2. reaction functions
- Both do not exactly work as previously used in our event study setting with daily data
- Instead: Combining the lessons from both by using
 1. Placebo events
 2. Matching approach based on reaction function (Fatum and Hutchinson, 2008)

▶ Table

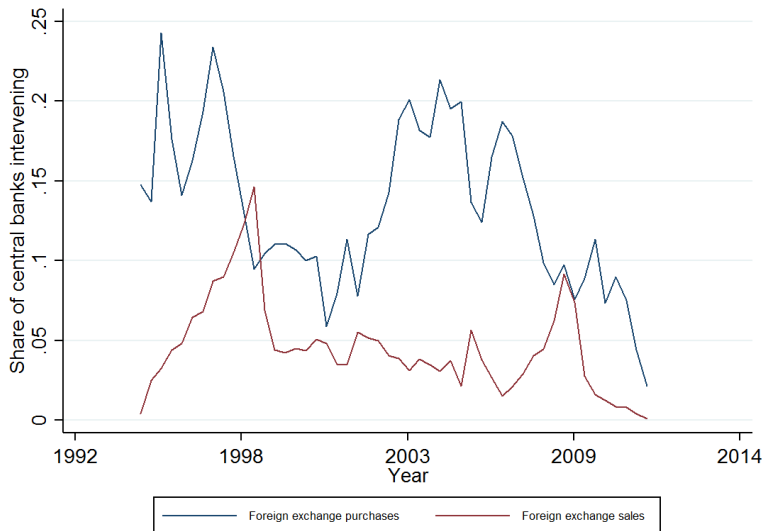
Robustness

- Regression methods (logit/probit)
- Effectiveness measures (success horizon)
- Quantitative effectiveness
- Intervention period (FXI length)
- Stopping rules
- Noise reduction (tiny interventions)
- Sample composition (dropping countries)
- Sample periods (e.g. GFC)
- Alternative volatility measures
- Measures of fundamentals (horizon, information set, and nominal/real terms)

Summary

- FX interventions are often regarded as outdated policy tool: against markets, tiny compared to markets, no signaling value
- In contrast: central bankers believe in their value and use it
- Need evidence to assess effectiveness → 33 countries, 1995-2011
- Interventions occur on 19% of trading days (stylized facts)
- Important to distinguish ER regimes
- FXI can be, but does not need to be, an effective policy tool
- Oral interventions matter, particularly in turbulent times

Share of countries intervening (smoothed daily data)



Coding the news

Coding generally considers only foreign exchange interventions and no other policy measures of central banks or governments.

Rumors capture the immediate rumors of market participants of central bank interventions on the same day.

Oral interventions are interventions by the central bank or minister of finance in favor or against a currency. Oral intervention means that either the likelihood of an intervention increases or the currency is talked into a particular direction. The announcement is tied to the specific day it occurred but the intention can be general and forward looking.

Confirmations are announcements by the central bank that foreign exchange has been purchased or sold on the same day.

Effectiveness, news coverage and oral interventions (1)

Panel A: Unnoticed intervention

Criterion	(1) event	(2) direction	(3) smoothing	(4) stabilization
Unnoticed intervention (0/1)	-0.073** (0.033)	-0.116*** (0.033)	-0.018 (0.030)	0.033 (0.029)
Specification otherwise as in Table 4	yes	yes	yes	yes
Observations	4,549	4,549	1,787	4,549

Panel B: Rumors vs. confirmations

Criterion	(5) event	(6) direction	(7) smoothing	(8) stabilization
Intervention rumor (0/1)	0.020 (0.035)	0.072** (0.036)	0.004 (0.034)	-0.038 (0.033)
Intervention confirmed (0/1)	0.192*** (0.062)	0.133** (0.064)	0.062 (0.043)	-0.013 (0.050)
Specification otherwise as in Table 4	yes	yes	yes	yes
Observations	4,549	4,549	1,787	4,549

▶ return

Effectiveness, news coverage and oral interventions (2)

Panel C: Oral interventions

Criterion	(9) event	(10) direction	(11) smoothing	(12) stabilization
Any oral intervention (0/1)	0.093*** (0.018)	0.074*** (0.018)	-0.067*** (0.024)	-0.062*** (0.013)
Specification otherwise as in Table 4	yes	yes	yes	yes
Observations	4,549	4,549	1,787	4,549

Panel D: Oral interventions in turbulent times

Criterion	(13) event	(14) direction	(15) smoothing	(16) stabilization
Any oral intervention (0/1)	0.087*** (0.018)	0.066*** (0.018)	-0.079*** (0.024)	-0.059*** (0.013)
Turbulent time (0/1)	-0.057 (0.041)	-0.051 (0.046)	-0.128* (0.074)	-0.053 (0.044)
Oral intervention (0/1) × Turbulent time (0/1)	0.133** (0.060)	0.185*** (0.064)	0.170** (0.085)	-0.063 (0.055)
Specification otherwise as in Table 4	yes	yes	yes	yes
Adj. R ²	0.377	0.403	0.802	0.811
Observations	4,549	4,549	1,787	4,549

▶ return

Effectiveness, information, and oral interventions

Criterion	(1) Event	(2) Direction	(3) Smoothing	(4) Stabilization
<i>Regime-specific intercepts</i>				
Free Floater	0.496*** (0.062)	0.544*** (0.063)	0.907*** (0.055)	0.466*** (0.052)
Broad Band	0.387*** (0.046)	0.453*** (0.047)	0.837*** (0.051)	0.640*** (0.042)
Narrow Band	0.236*** (0.036)	0.332*** (0.037)	0.832*** (0.038)	0.950*** (0.032)
Other regime	0.128*** (0.044)	0.269*** (0.045)	0.931*** (0.048)	1.023*** (0.035)
<i>Intervention characteristics</i>				
Average daily intervention size in % of GDP	0.258** (0.102)	0.234** (0.103)	0.133* (0.079)	0.151** (0.065)
Intervention with prior 2 weeks' trend (0/1)	0.095*** (0.015)	0.138*** (0.015)	-0.064** (0.028)	0.014 (0.012)
Intervention towards fundamental (based on distance to 3Y-MA)	0.004*** (0.001)	0.004*** (0.001)	0.000 (0.001)	-0.005*** (0.001)
Share of max. local volatility	-0.042 (0.042)	-0.053 (0.045)	0.208*** (0.052)	-0.547*** (0.042)
<i>Communication</i>				
Unnoticed intervention (0/1)	-0.044 (0.033)	-0.098*** (0.034)	-0.041 (0.031)	0.014 (0.030)
Any oral intervention (0/1)	0.081*** (0.018)	0.053*** (0.019)	-0.086*** (0.025)	-0.057*** (0.014)
Turbulent time (0/1)	-0.058 (0.041)	-0.054 (0.046)	-0.130* (0.074)	-0.053 (0.044)
Any oral intervention (0/1) × Turbulent time (0/1)	0.137** (0.060)	0.193*** (0.064)	0.175** (0.085)	-0.065 (0.054)
Observations	4,549	4,549	1,787	4,549
Adj. R-squared	0.377	0.405	0.802	0.811

Transparency

Criterion	(1) Event	(2) Direction	(3) Smoothing	(4) Stabilization
<i>Intervention characteristics</i>				
Average daily intervention size in % of GDP	0.188** (0.093)	0.194** (0.095)	0.105 (0.082)	0.071 (0.068)
Intervention with prior 2 weeks' trend (0/1)	0.041*** (0.015)	0.072*** (0.016)	-0.065** (0.028)	0.009 (0.012)
Intervention towards fundamental	0.000 (0.001)	-0.000 (0.001)	0.001 (0.001)	-0.004*** (0.001)
Share of max. local volatility	0.109** (0.044)	0.072 (0.046)	0.137** (0.055)	-0.497*** (0.045)
<i>Communication</i>				
Unnoticed intervention (0/1)	-0.044 (0.034)	-0.097*** (0.034)	-0.017 (0.031)	0.024 (0.030)
Any oral intervention (0/1)	0.117*** (0.021)	0.122*** (0.023)	-0.062** (0.031)	0.005 (0.017)
Turbulent time (0/1)	-0.067 (0.041)	-0.070 (0.045)	-0.114 (0.075)	-0.059 (0.043)
Any oral intervention (0/1) × Turbulent time (0/1)	0.122** (0.060)	0.179*** (0.063)	0.161* (0.085)	-0.052 (0.054)
Any oral intervention (0/1) × Preannounced regime (0/1)	-0.340*** (0.043)	-0.423*** (0.044)	-0.048 (0.074)	-0.082*** (0.031)
"Fine grid" currency regime fixed effects	yes	yes	yes	yes
Observations	4,549	4,549	1,787	4,549
Adj. R-squared	0.412	0.442	0.804	0.823

Likelihood that events remain unnoticed

Dependent variable	(1) Unnoticed	(2) Unnoticed	(3) Unnoticed
Average daily intervention size in % of GDP	-0.437*** (0.080)	-0.188*** (0.056)	-0.188*** (0.056)
Length of episode in days	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)
Log GDP of country			-0.002 (0.005)
Regime fixed effects	yes	yes	yes
Country fixed effects	no	yes	yes
Observations	4,549	4,549	4,549
R-squared	0.112	0.377	0.377

Heteroskedasticity-robust standard errors in parentheses. *, **, and *** indicate significance at the 10, 5 and 1 percent level, respectively. The outcome variable indicates that an intervention episode is not reported in Factiva news.

Determinants of effectiveness and the role of interest rate changes

Criterion	(1) Event	(2) Smoothing	(3) Stabilization
<i>Regime-specific intercepts</i>			
Free Floater	0.523*** (0.055)	0.801*** (0.045)	0.503*** (0.046)
Broad Band	0.405*** (0.030)	0.722*** (0.030)	0.702*** (0.027)
Narrow Band	0.352*** (0.017)	0.740*** (0.020)	0.996*** (0.010)
Other Regime	0.138*** (0.025)	0.893*** (0.027)	1.050*** (0.014)
<i>Intervention characteristics</i>			
Average daily intervention size in % of GDP	0.222** (0.103)	0.165** (0.073)	0.085 (0.067)
Intervention with prior 2 weeks' trend (0/1)	0.047** (0.019)	-0.079** (0.031)	0.010 (0.014)
Intervention towards fundamental (based on distance to 3Y-MA)	0.004*** (0.001)	0.001 (0.001)	-0.004*** (0.001)
Share of max. local volatility	0.077 (0.055)	0.190*** (0.052)	-0.785*** (0.049)
FX purchase (0/1) × Day on day change in money market rate (in percentage points)	0.007 (0.007)	-0.021* (0.012)	-0.008 (0.005)
FX sale (0/1) × Day on day change in money market rate (in percentage points)	0.003 (0.008)	-0.000 (0.011)	-0.002 (0.009)
Observations	3,035	1,480	3,035
R-squared	0.443	0.801	0.827

Addressing Endogeneity: Approach

- FX counterfactual would would require good fit and might severely bias our results for longer events
→ placebo events are an alternative approach to provide counterfactual
- However, circumstances may differ
- Solution:
 1. Create data set of actual events and placebo events
 2. Estimate reaction function
 3. Match actual and placebo events based on the most important predictors from 2.*
 4. Estimate difference in success between observably identical actual and placebo events

▶ Return

* Nearest neighbor matching with bias correction using, the lagged absolute misalignment from the 5, 3 and 1 year moving average (uncentered, previous year) of the exchange rate and the absolute change in the exchange rate leading to the previous day. Exact matching within country is used. The placebo intervention episodes are designed to have the country-specific median length of the intervention episodes and the length is accounted for in the matching procedure.

Matching events and placebo events by country on misalignment and previous FX change

Criterion Regime Estimator	(1) Event Free Floater nn-match	(2) Smoothing Free Floater nn-match	(3) Smoothing Broad Band nn-match	(4) Stabilize Broad Band nn-match	(5) Smoothing Narrow Band nn-match	(6) Stabilize Narrow Band nn-match
Avg. effect on treated	0.250*** (0.067)	0.329*** (0.112)	0.267*** (0.094)	-0.001 (0.079)	0.347*** (0.060)	0.104*** (0.015)
Observations	18,533	9,556	25,940	28,376	17,671	25,556

Notes: Nearest neighbor matching with bias correction using the lagged absolute misalignment from the 5, 3 and 1 year moving average (uncentered, previous year) of the exchange rate and the absolute change in the exchange rate leading to the previous day. Exact matching within country is used resulting in some observations that cannot be matched and which are excluded. The placebo intervention episodes are designed to have the country-specific median length of the intervention episodes and the length is accounted for in the matching procedure. *, **, and *** indicate significance at the 10, 5 and 1 percent level, respectively. The number of observations indicates first days of intervention episodes plus the number of days that are not part of an intervention episode and for which placebo events are calculated.

Determinants of moving the exchange rate

Criterion	(1)	(2)	(3)	(4)	(5)
	Event	Movement		Distance	
Subsample	All	> 0.1%	> 0.2%	All	Free Floater
Free Floater	0.532*** (0.053)	0.486*** (0.052)	0.425*** (0.053)	0.575 (0.377)	0.419 (1.055)
Broad Band	0.414*** (0.024)	0.319*** (0.023)	0.273*** (0.022)	0.024 (0.082)	
Narrow Band	0.213*** (0.012)	0.104*** (0.010)	0.059*** (0.009)	0.109*** (0.040)	
Other regime	0.133*** (0.021)	0.011 (0.016)	-0.040*** (0.012)	0.138* (0.073)	
<i>Intervention characteristics</i>					
Average daily intervention size in % of GDP	0.330*** (0.104)	0.215** (0.089)	0.171** (0.082)	0.294 (0.212)	0.356 (0.884)
Intervention with prior 2 weeks' trend (0/1)	0.099*** (0.015)	0.061*** (0.013)	0.043*** (0.012)	-0.031 (0.045)	0.388 (0.728)
Intervention towards fundamental (based on distance to 3Y-MA)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	-0.005 (0.004)	-0.036 (0.037)
Share of max. local volatility	0.004 (0.041)	0.177*** (0.040)	0.231*** (0.038)	-0.037 (0.160)	0.652 (1.870)
Observations	4,549	4,549	4,549	4,535	94
Adj. R-squared	0.373	0.330	0.311	0.007	0.035

Considering capital controls (CC)

Motivation

- CCs have become of interest in recent years
- Often used, in particular in EMD economies
- Independent policy tool: however, intention somewhat related to FX interventions
- New data allow systematic analysis

Our procedure

- Use new database by Fernandez et al. (2015) covering almost all of our countries
- Just add up all possible controls, then normalize between 0-1.
- **New index** with median 0.09, mean 0.22 → add to regressions
- Also use subindex covering only four groups (money market, bond, equities, funds)
- Also divide again into single groups

Determinants of effectiveness and capital controls

Criterion	(1) Event	(2) Direction	(3) Smoothing	(4) Stabilization
<i>Intervention characteristics</i>				
Average daily intervention size in % of GDP	0.184 (0.124)	0.186 (0.129)	0.234** (0.093)	0.086 (0.087)
Intervention with prior 2 weeks' trend (0/1)	0.097*** (0.018)	0.161*** (0.019)	-0.044 (0.033)	0.008 (0.015)
Intervention towards fundamental (based on distance to 3Y-MA)	0.005*** (0.001)	0.004*** (0.001)	-0.000 (0.001)	-0.005*** (0.001)
Share of max. local volatility	-0.108** (0.047)	-0.088* (0.050)	0.263*** (0.062)	-0.455*** (0.047)
<i>Communication</i>				
Unnoticed intervention (0/1)	-0.024 (0.040)	-0.079* (0.042)	-0.028 (0.040)	0.025 (0.037)
Any oral intervention (0/1)	0.071*** (0.022)	0.045** (0.023)	-0.084*** (0.031)	-0.064*** (0.017)
Turbulent time (0/1)	-0.106** (0.041)	-0.127*** (0.047)	-0.166* (0.096)	-0.105* (0.061)
Oral intervention (0/1) × Turbulent time (0/1)	0.205*** (0.063)	0.276*** (0.067)	0.191* (0.105)	0.018 (0.070)
<i>Capital controls</i>				
Aggregate index	0.170*** (0.033)	0.174*** (0.034)	0.021 (0.041)	0.071*** (0.027)
Currency regime fixed effects	yes	yes	yes	yes
Observations	3,233	3,233	1,235	3,233
Adj. R-squared	0.394	0.425	0.801	0.788