

Monetary Policy in Mexico: The Effects of Actions and Statements on Asset Prices and Portfolio Flows

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SFA Annual Meeting 2020

Introduction

- In JMP on EM bonds:
 - Long-term yields **comove more** than short-term ones after GFC
 - Global financial cycle is **more relevant** for long- than short-term yields
- Currency and bond yields in Mexico respond to policy rate surprises
- **Here**: does monetary policy in Mexico has more than one dimension?
 - Do asset prices and portfolio flows respond to changes in policy statements?

Identification of Monetary Policy Surprises

- Asset price changes in **30-minute** windows around policy announcements
 - Surprises:
 - Swap rates: 3M, 6M, 9M, 1Y
 - Effects:
 - Bond yields: 2Y, 5Y, 10Y, 30Y
 - Exchange rate (pesos per U.S. dollar)
- Intraday data from Bloomberg starts in 2011 and ends in 2019

How Many Factors Drive Asset Price Changes?

- Cragg–Donald rank test to assess number of factors

	Frequency	$H_0 : k = k_0$	Wald Statistic	Degrees of Freedom	p -value	Observations
Exchange Rate & Yield Curve	Intraday	0	36.55	10	0.000	41
		1	11.62	5	0.040	41
		2	0.04	1	0.851	41
	Daily	0	35.24	10	0.000	120
		1	14.60	5	0.012	120
		2	0.01	1	0.933	120

How Many Factors Drive Asset Price Changes?

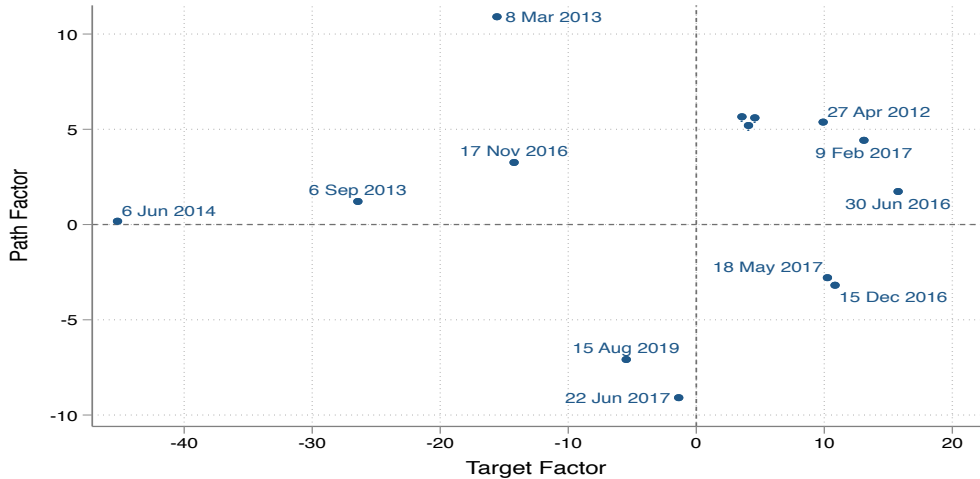
	Frequency	$H_0 : k = k_0$	Wald Statistic	Degrees of Freedom	p -value	Observations
Swaps	Intraday	0	26.47	6	0.000	72
		1	7.47	2	0.024	72
	Daily	0	25.57	6	0.000	155
		1	9.49	2	0.009	155

- Asset prices react to more than just unanticipated changes in the policy rate

Structural Interpretation

- Two factors from **swaps** data:
 - Estimated by principal components
 - Rotated and rescaled for interpretation
- Two types of monetary policy surprises (Gürkaynak et al., 2005)
 - Target factor: *current* policy rate
 - Path factor: *future path* of policy rate from **statements**

Monetary Policy Dimensions



Measuring the Effects on Asset Prices

$$\Delta y_t = \beta_0 + \beta_1 Target_t + \beta_2 Path_t + \varepsilon_t$$

Δy_t : intraday change in bond yields and the exchange rate

$Target_t$ and $Path_t$: intraday monetary policy factors

- (+) tightenings
- (−) easings

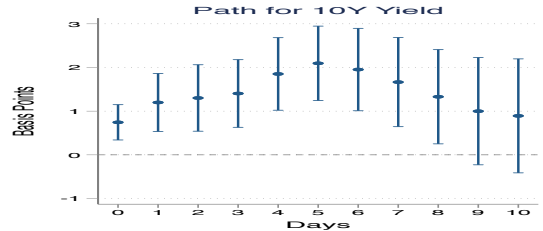
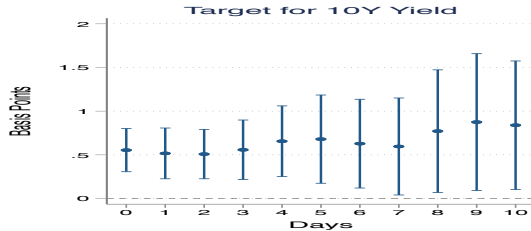
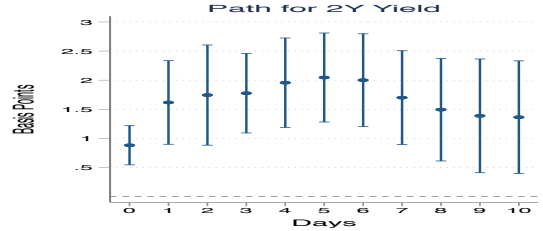
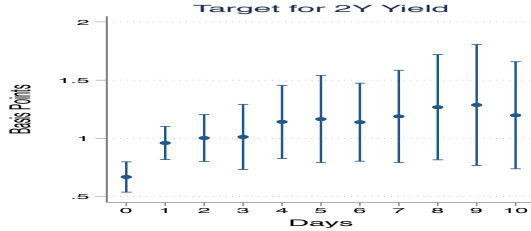
ε_t : error term

Asset Price Responses

	FX		2Y-Yield		5Y-Yield		10Y-Yield		30Y-Yield	
Target Factor	-1.89** (0.77)	-1.89** (0.78)	0.67*** (0.09)	0.68*** (0.08)	0.35*** (0.10)	0.27*** (0.09)	0.42*** (0.09)	0.42*** (0.08)	0.30*** (0.08)	0.30*** (0.07)
Path Factor		-0.14 (1.19)		0.48*** (0.09)		0.69*** (0.16)		0.56*** (0.12)		0.59*** (0.12)
Observations	72	72	56	56	41	41	56	56	56	56
R-squared	0.20	0.20	0.80	0.86	0.24	0.60	0.53	0.69	0.35	0.59

Notes: Robust standard errors in parentheses. *, **, *** asterisks respectively indicate significance at the 10%, 5% and 1% level.

Persistence of Yields to Monetary Policy Surprises



Portfolio Flow Data

- Portfolio flows involving U.S. investors particularly relevant for Mexico
- U.S. TIC system: Monthly flow data from 2011 to 2019
- Inflows and outflows in 4 categories
 - U.S. Treasury bonds and notes
 - U.S. government agency bonds
 - Non-U.S. (Mexican) bonds
 - Non-U.S. (Mexican) stocks

Measuring the Effects on Portfolio Flows

$$w_t = \beta_0 + \beta_1 Target_t + \beta_2 Path_t + \sum_{j=1}^p \alpha_j w_{t-j} + \nu_t$$

w_t : category of portfolio flow

w_{t-j} : lags capture persistence in flow data

$Target_t$ and $Path_t$: **monthly** monetary policy factors

- Set to zero in non-announcement months

Portfolio Flow Responses

	Inflows				Outflows			
	T-Bonds T-Notes	Agency Bonds	Non-U.S. Bonds	Non-U.S. Stocks	T-Bonds T-Notes	Agency Bonds	Non-U.S. Bonds	Non-U.S. Stocks
Target Factor	-0.048 (0.055)	0.010 (0.018)	-0.047 (0.035)	-0.019*** (0.005)	-0.007 (0.028)	0.011 (0.008)	-0.017 (0.033)	-0.013** (0.006)
Path Factor	0.088 (0.162)	0.070** (0.035)	0.097 (0.102)	-0.003 (0.015)	0.169 (0.112)	0.008 (0.021)	0.028 (0.064)	0.001 (0.015)
Lags	0	1	1	3	0	3	3	3
Observations	107	107	107	107	107	107	107	107
R-squared	0.016	0.228	0.125	0.601	0.026	0.225	0.255	0.589

Notes: Robust standard errors in parentheses. *, **, *** asterisks respectively indicate significance at the 10%, 5% and 1% level.

Monetary Policy Asymmetries

- So far, symmetric responses to tightenings and easings
- AE currencies respond symmetrically (Ferrari et al., 2017)
- **Asymmetric** response of flows to EM (Curcuru et al., 2015)
- Are responses to monetary policy in Mexico asymmetric?

Measuring Asymmetric Responses to Monetary Policy

$$y_t = \beta_0 + \beta_1 Target_t \mathbb{1}(Target_t > 0) + \beta_2 Target_t \mathbb{1}(Target_t < 0) \\ + \beta_3 Path_t \mathbb{1}(Path_t > 0) + \beta_4 Path_t \mathbb{1}(Path_t < 0) + \varepsilon_t$$

y_t : intraday asset price change or monthly portfolio flows

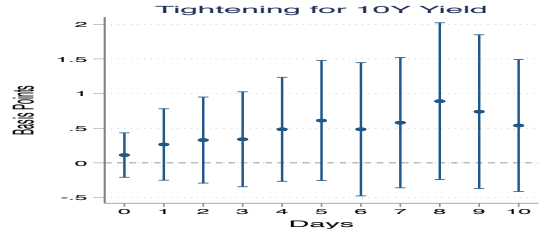
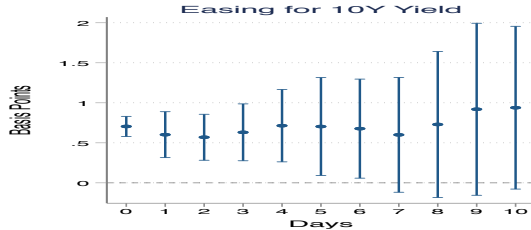
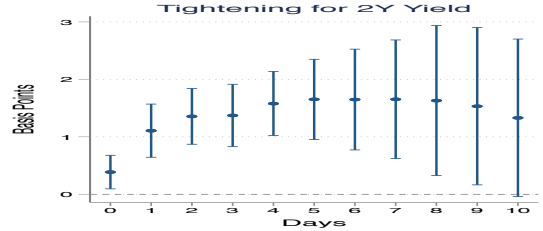
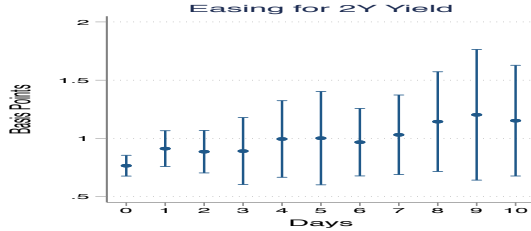
- y_t increases if
 - $\beta_2 < 0$ and $Target_t < 0$, or
 - $\beta_4 < 0$ and $Path_t < 0$

Asymmetric Asset Price Responses

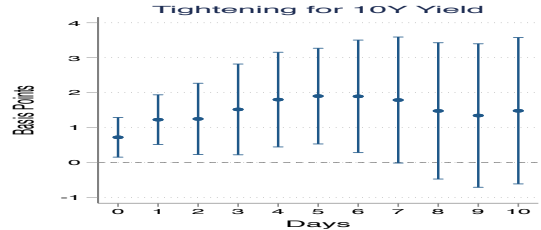
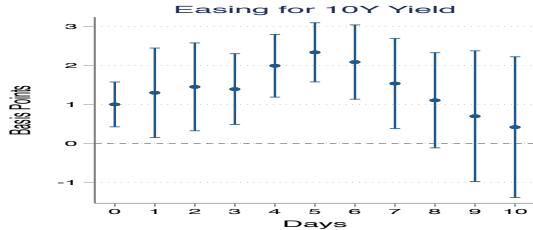
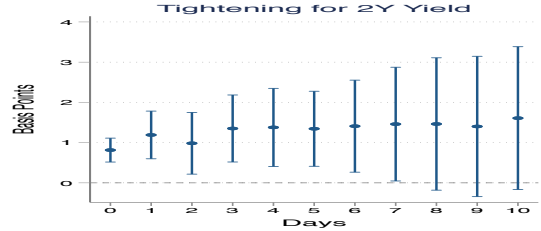
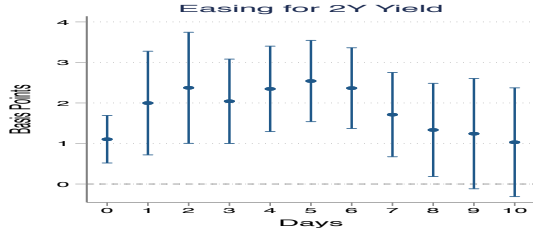
	FX		2Y-Yield		5Y-Yield		10Y-Yield		30Y-Yield	
Target*1(Target < 0)	-0.45 (0.40)	-0.44 (0.39)	0.74*** (0.08)	0.79*** (0.04)	0.76** (0.29)	0.73*** (0.13)	0.50*** (0.07)	0.55*** (0.03)	0.39*** (0.06)	0.43*** (0.03)
Target*1(Target > 0)	-6.11*** (1.14)	-6.12*** (1.32)	0.47*** (0.08)	0.33*** (0.05)	0.18*** (0.06)	0.08 (0.05)	0.15 (0.09)	0.02 (0.08)	-0.01 (0.10)	-0.11 (0.09)
Path*1(Path < 0)		1.29 (1.31)		0.29** (0.11)		0.59*** (0.20)		0.47*** (0.17)		0.61*** (0.20)
Path*1(Path > 0)		0.61 (1.90)		0.79*** (0.12)		0.80*** (0.19)		0.80*** (0.15)		0.73*** (0.11)
H_0 : Target Equality	0	0.00	0.02	0	0.06	0.00	0.00	0	0.00	0
H_0 : Path Equality		0.55		0		0		0		0
Observations	72	72	56	56	41	41	56	56	56	56
R-squared	0.50	0.51	0.82	0.91	0.36	0.72	0.60	0.80	0.46	0.74

Notes: Robust standard errors in parentheses. *, **, *** asterisks respectively indicate significance at the 10%, 5% and 1% level.

Persistence Asymmetric Yield Responses to Target Factor



Persistence Asymmetric Yield Responses to Path Factor



Asymmetric Portfolio Flow Responses

	Inflows				Outflows			
	T-Bonds T-Notes	Agency Bonds	Non-U.S. Bonds	Non-U.S. Stocks	T-Bonds T-Notes	Agency Bonds	Non-U.S. Bonds	Non-U.S. Stocks
Target*1(Target < 0)	0.010 (0.031)	-0.001 (0.008)	-0.079** (0.030)	-0.023*** (0.004)	0.011 (0.039)	0.008 (0.010)	-0.020 (0.041)	-0.022*** (0.004)
Target*1(Target > 0)	-0.216*** (0.073)	0.042 (0.062)	0.049 (0.070)	-0.005 (0.012)	-0.058 (0.051)	0.021 (0.016)	-0.007 (0.092)	0.011 (0.012)
Path*1(Path < 0)	-0.184 (0.184)	0.108** (0.050)	-0.068 (0.158)	-0.014 (0.021)	0.041 (0.124)	-0.040 (0.031)	-0.030 (0.098)	-0.004 (0.024)
Path*1(Path > 0)	0.436* (0.253)	0.017 (0.044)	0.212 (0.163)	0.002 (0.025)	0.320 (0.214)	0.050 (0.039)	0.081 (0.135)	-0.006 (0.025)
Lags	0	1	1	3	0	3	3	3
H_0 : Target Equality	0.005	0.506	0.107	0.140	0.334	0.498	0.906	0.016
H_0 : Path Equality	0.192	0.071	0.433	0.805	0.260	0.262	0.829	0.951
Observations	107	107	107	107	107	107	107	107
R-squared	0.071	0.241	0.166	0.605	0.036	0.252	0.258	0.600

Notes: Robust standard errors in parentheses. *, **, *** asterisks respectively indicate significance at the 10%, 5% and 1% level.

Conclusions

- **Multidimensionality** of monetary policy in emerging markets
 - Surprises: *Current* and *future path* of the policy rate
 - Effects: Asset prices and portfolio flows
- Responses to tightenings and easings are **asymmetric**
 - Country-specific or an emerging market phenomenon?
 - Asymmetry in macroeconomic effects?