Spillovers from the U.S. Monetary Policy on Latin American countries: the role of the surprise component of the Feds announcements

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Outline

Motivation

- Normalization of monetary policy in the United States...a dilemma for emerging markets?

- Cross-border financial spillovers and global financial shocks on Emerging Economies (EMEs).

Open Questions

- Do U.S. monetary policy shocks have significant effects on asset price movements in Latin Market economies?

- Do these effects differ across different phases of U.S. monetary policy from conventional to unconventional?

- Do the effects of U.S. monetary policy shocks depend on the domestic economic conditions of EMs? Do they vary according to the characteristics and policy choices of recipient countries?

Literature Review

- LSAP programmes promote capital inflows to EMEs, higher equity returns, and stronger currencies with significant reductions of the credit spreads, see Chen et al (2014), Bowman et al (2014).

- Market reactions to Tapering talk were universal at the beginning, although later different effects emerged due to macro fundamentals, see Eichengreen and Gupta (2014), Aizenman et al (2014), Mishra et al. (2014),

Literature Review

- Overall, it seems that the UMP measures work through the following transmission channels: i) the signalling channel, ii) the portfolio-balance channel, and iii) the confidence channel; see for instance Woodford (2012), and IMF (2013).

- Literature contrasting the impact of conventional and unconventional monetary policy in the U.S. has been scarce until now; see Chen et al. (2014), Gilchrist et al. (2014), Varguese and Zhang (2018)

The new Dilemma for LATAM Countries

- A tighter monetary policy to preserve the monetary and currency stability versus a looser policy to moderate the recession.

- The "cycle within the cycle"?

Evolution of Monetary Policy in LATAM Countries
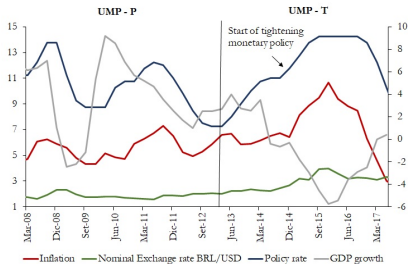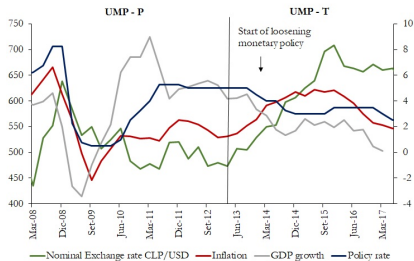
Figure 1: Brazil

Figure 2: Chile

Source: IMF Financial Statistics, World Bank Stat

Methodology: Measuring Monetary Policy Surprises

- Monetary policy surprises are typically defined as the difference between the expected and the effective Federal Funds target rates set on the day of the FOMC announcement.

- Through a factor analysis, Gurkaynak, et al. (2005, 2007) separate the surprise on the short-term policy rate, from the surprise on the path of interest rates up to two years ahead.

- Following Chen et al (2014)s approach, we extract two factors from changes in yields from 1-year to 20-year maturities:

$$X_{T \times n} = F_{T \times k} \Lambda_{k \times n} + \eta_{T \times n}$$

- The method allows for a clear distinction of two factors: the *market* factor, and the *signal* factor.

Figure 3: Factor Loadings and Bonds of Different Maturity

market factor $\Rightarrow$ *portfolio rebalancing channel*
signal factor $\Rightarrow$ *signalling channel*

Table 1: Fed's Announcements and monetary policy surprises

			Factor 1 (market surprise)	Factor 2 (signal surprise)
Conventional Monetary Policy (CMP)				
11/12/2001	FOMC statement	Additional 25 bps cut. Lowest level in 40 years.	-0.23	**-1.39**
30/06/2004	FOMC statement	First 25 bps increase in almost 4 years	-0.44	**-2.37**
Unconventional Monetary Policy Purchases (UMP-P)				
25/11/2008	LSAP 1	The Fed announces the purchase of MBS supported by government agencies, TALF creation	**-3.78**	-0.57
16/12/2008	Forward Guidance	The FOMC anticipates low levels of the Federal Funds rate for a long time.	**-2.34**	**-1.13**
18/03/2009	LSAP 1	The Fed announces the future purchase of long-term Treasury securities	**-8.93**	-0.65
02/11/2010	LSAP 2	The Fed decides to purchase additional US\$ 600 billion of dollars of long-term Treasury securities	-0.94	0.64
Unconventional Monetary Policy Tapering (UMP-T)				
22/05/2013	FOMC minutes and testimony	Bernanke suggests to scale back its monetary stimulus	**2.11**	-0.91
19/06/2013	Taper talk	The Fed suggests that "tapering" could begin next year if see indications of sustained economic growth.	**2.72**	0.11
14/12/2016	FOMC statement	Second 25 bps hike and update the plans for normalizing its benchmark rate.	0.22	**2.08**

Note: Based on Borrallo et al (2016) and Chen et al (2014)

Methodology: event-study analysis

- We calculate the response of LATAM markets to monetary policy surprises as asset price changes within a 2-day window over the period January 2000 December 2017:

$$\Delta y_{it} = \alpha_i + \beta_1 f_1 + \beta_2 f_2 + \varepsilon_{it}$$

- We expect the signs of the estimates to be opposite to that of the events since negative values for market and signal factors characterize loosening (dovish) surprises.

Methodology: event-study analysis

- We divide the sample in three phases:
    1. Conventional Monetary Policy (CMP)
    2. Unconventional Monetary Policy-Purchases (UMP-P)
    3. Unconventional Monetary Policy-Tapering (UMP-T)

- We expect that U.S. monetary policy surprises have a larger and significant impact during the UMP phase.

- We study country heterogeneity through a fixed effects model for a quarterly panel data set.

- The country characteristics are included as separate variables, and as interaction terms in the baseline regression.

$$\Delta y_{it} = \alpha_i + \beta_1 f_1 + \beta_2 f_2 + \gamma_1 f_1 CC_t + \gamma_2 f_2 CC_t + \varepsilon_{it}$$

- Feds announcements appear to have caused more surprises to the market during the UMP period, mainly through the *market* factor linked to the term premium.

- A positive value represents surprises for markets on the hawkish side. In contrast, negative values indicate dovish or loosening surprises.

Table 2: **Spillovers from US Monetary Policy on LATAM Countries**

	CMP		UMP-P		UMP-T	
	market	signal	market	signal	market	signal
Stock Market Index	-0.03	**0.29****	**0.57*****	**0.26*****	**-0.43*****	**-0.54****
	(0.046)	**(0.091)**	**(0.066)**	**(0.038)**	**(0.053)**	**(0.126)**
Nominal Exchange rates	0.00	**-0.1****	**-0.34*****	**-0.09****	**0.29*****	**0.45****
	(0.003)	**(0.029)**	**(0.063)**	**(0.033)**	**(0.043)**	**(0.105)**
Bond yields	2.74	-4.78	-0.98	-0.27	**3.84****	3.63
	(1.803)	(2.465)	(0.564)	(0.187)	**(1.044)**	(1.952)
USD bond yields	**1.0*****	-0.03	-0.83	-0.37	**4.21*****	1.27
	(0.12)	(0.093)	(0.541)	(0.546)	**(0.069)**	(0.794)
CDS 10-year	**0.74*****	**-1.13*****	**-1.38*****	**-0.88*****	**1.6*****	**1.26*****
	(0.091)	**(0.047)**	**(0.058)**	**(0.072)**	**(0.101)**	**(0.169)**

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Results: LATAM market reactions

Table 3: **Equity returns**
January 2000 - December 2017

	LATAM	PE	COP	CHL	BRL	MXN
CMP						
market	-0.03	0.00	-0.40	0.02	0.02	-0.01
	(0.046)	(0.068)	(0.312)	(0.059)	(0.109)	(0.08)
signal	**0.29****	**0.14****	1.00	**0.18****	**0.30****	**0.25****
	(0.091)	**(0.058)**	(0.686)	**(0.073)**	**(0.134)**	**(0.112)**
UMP-P						
market	**0.57*****	**0.57*****	**0.35****	**0.52*****	**0.74*****	**0.67*****
	(0.066)	**(0.216)**	**(0.17)**	**(0.096)**	**(0.21)**	**(0.165)**
signal	**0.26*****	**0.38****	**0.15**	**0.21*****	**0.29***	**0.27****
	(0.038)	**(0.185)**	**(0.125)**	**(0.071)**	**(0.156)**	**(0.113)**
UMP-T						
market	**-0.43*****	-0.60	-0.29	-0.35	-0.42	-0.46*
	(0.053)	(0.399)	(0.200)	(0.213)	(0.302)	(0.276)
signal	**-0.54****	-0.24	-0.35	**-0.56****	-0.99*	**-0.53****
	(0.126)	(0.403)	(0.275)	**(0.246)**	(0.514)	**(0.253)**

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Table 4: **Nominal Exchange Rates**
January 2000 - December 2017

	LATAM	PE	COP	CHL	BRL	MXN
CMP						
market	0.00	0.00	0.01	-0.01	0.00	0.01
	(0.003)	(0.01)	(0.027)	(0.032)	(0.06)	(0.021)
signal	-0.1**	-0.01*	-0.1**	-0.11***	-0.19***	-0.07**
	(0.029)	(0.009)	(0.041)	(0.04)	(0.059)	(0.03)
UMP-P						
market	-0.34***	-0.13***	-0.38***	-0.31***	-0.51***	-0.38***
	(0.063)	(0.029)	(0.105)	(0.067)	(0.142)	(0.109)
signal	-0.09**	-0.01	-0.08	-0.05	-0.20*	-0.12
	(0.033)	(0.032)	(0.072)	(0.09)	(0.12)	(0.082)
UMP-T						
market	0.29***	0.22*	0.17	0.37	0.4**	0.30
	(0.043)	(0.121)	(0.166)	(0.232)	(0.19)	(0.185)
signal	0.45**	0.10	0.6**	0.47**	0.71***	0.38**
	(0.105)	(0.091)	(0.242)	(0.212)	(0.268)	(0.150)

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Table 5: **Sovereign Bond Yields**
March 2006 - December 2017

	LATAM	PE	COP	CHL	BRL	MXN
CMP						
market	2.74	1.91	6.85*	-0.09	4.03	
	(1.803)	(1.94)	(4.103)	(0.126)	(2.765)	
signal	-4.78	-4.2	-9.94	0.09	**-7.47*****	
	(2.465)	(3.132)	(8.241)	(0.113)	**(2.083)**	
UMP-P						
market	-0.98	-1.55	**-2.68*****	-0.29	-0.23	1.52*
	(0.564)	(1.057)	**(0.506)**	(0.253)	(0.351)	(0.872)
signal	-0.27	-0.62	-0.67	-0.03	-0.06	2.67
	(0.187)	(0.583)	(0.702)	(0.286)	(0.497)	(1.713)
UMP-T						
market	**3.84****	**5.36****	6.85*	0.24	**5.96****	**5.51****
	(1.044)	**(2.607)**	(3.64)	(0.399)	**(2.894)**	**(2.389)**
signal	3.63	6.53	0.64	**3.36****	**13.01*****	**3.75****
	(1.952)	(5.557)	(3.033)	**(1.585)**	**(4.656)**	**(1.656)**

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Table 6: **Dollar Denominated Bond Yields**
January 2007 - December 2017

	LATAM	PE	COP	BRL	MXN
CMP					
market	**1.0***	1.53	-0.18		
	(0.12)	(1.286)	(1.521)		
signal	-0.03	-0.21	-0.01		
	(0.093)	(1.101)	(1.205)		
UMP-P					
market	-0.83	0.05	**-1.91****	**-1.82****	**-2.11***
	(0.541)	(0.083)	**(0.835)**	**(0.7)**	**(0.68)**
signal	-0.37	0.14	-1.42	-2.75	-2.23
	(0.546)	(0.174)	(0.983)	(1.668)	(1.491)
UMP-T					
market	**4.21***	**5.0****	**4.99***	**5.79****	**5.23****
	(0.069)	**(2.187)**	**(2.606)**	**(2.363)**	**(2.136)**
signal	1.27	2.74*	2.82*	**6.28****	1.65
	(0.794)	(1.562)	(1.467)	**(2.679)**	(1.797)

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Results: LATAM market reactions

Table 7: **CDS 5 years**
January 2005 - December 2017

	LATAM	PE	COP	CHL	BRL	MXN
CMP						
market	**0.74***	0.78	0.85*	0.39	0.75	**0.9**
	(0.091)	(0.546)	(0.485)	(0.281)	(0.548)	**(0.421)**
signal	**-1.13***	**-1.19**	**-1.24**	**-1.02***	**-1.17**	**-1.01***
	(0.047)	**(0.48)**	**(0.518)**	**(0.339)**	**(0.543)**	**(0.364)**
UMP-P						
market	**-1.38***	**-1.48***	**-1.28***	**-1.21***	**-1.5***	**-1.43***
	(0.058)	**(0.518)**	**(0.448)**	**(0.447)**	**(0.433)**	**(0.451)**
signal	**-0.88***	**-0.8**	**-0.67**	**-1.08***	**-0.84***	**-0.98***
	(0.072)	**(0.336)**	**(0.272)**	**(0.326)**	**(0.314)**	**(0.311)**
UMP-T						
market	**1.6***	1.42	1.65	1.35	1.68*	1.92
	(0.101)	(0.962)	(1.323)	(0.893)	(1.007)	(1.382)
signal	**1.26***	0.85	1.07	**1.73**	**1.59**	1.08
	(0.169)	(0.618)	(0.802)	**(0.827)**	**(0.712)**	(0.747)

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Table 8: **The Role of Country Characteristics I**

	Index	Nominal exchange rate	Bond yields	USD bond yields	CDS
Macroeconomic Variables					
GDP growth					
market	**-0.037****	**-0.002*****	-0.002	0.004	**-0.005*****
	(0.01)	**(0.000)**	(0.003)	(0.002)	**(0.001)**
signal	0.157	0.0001*	**-0.023*****	**-0.009****	0.004*
	(0.077)	(0.000)	**(0.003)**	**(0.002)**	(0.001)
Inflation					
market	0.104		-0.011	-0.011	**-0.022*****
	(0.086)		(0.011)	(0.009)	**(0.001)**
signal	0.203		0.012*	0.012	0.002*
	(0.107)		(0.005)	(0.01)	(0.001)
Structural variables					
Market Size					
market	0.215	0.001	0.022	-0.063	**-0.153*****
	(0.16)	(0.002)	(0.041)	(0.063)	**(0.007)**
signal	-2.003*	**0.01****	**0.079*****	**0.171****	0.012
	(0.858)	**(0.002)**	(0.016)	**(0.039)**	(0.015)

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Table 9: **The Role of Country Characteristics II**

	Index	Nominal exchange rate	Bond yields	USD bond yields	CDS
External variables					
Debt Ratio					
market	0.000		0.001	**0.003****	0.0001*
	(0.000)		(0.001)	**(0.001)**	(0.000)
signal	0.005		**0.001****	0.001	**0.001****
	-0.025		**(0.000)**	(0.001)	**(0.000)**
Current Account					
market	**-0.111****	-0.001	-0.004	**-0.018****	**-0.003*****
	(0.025)	(0.000)	(0.005)	**(0.003)**	**(0.000)**
signal	**0.241*****	**-0.002****	0.002	-0.009	**0.003****
	(0.041)	**(0.001)**	(0.005)	(0.009)	**(0.001)**
Reserves					
market		**-0.014****		0.180	-0.021*
		(0.005)		(0.112)	(0.009)
signal		-0.065		0.423	0.012
		(0.036)		(0.218)	(0.014)

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Results

Table 10: **Fed's Announcements and Local Central Banks Reactions: Brazil case**

	Equation 1	Equation 2
CMP		
Local Policy rate		-0.0001
		(-7.383)
market factor	4.030	4.000
	(-2.765)	(-2.730)
signal factor	-7.47***	1.93
	(-2.083)	(-1.926)
UMP-P		
Local Policy rate		1.930
		(-1.920)
market factor	-0.230	-0.163
	(-0.351)	(-0.433)
signal factor	-0.060	0.000
	(-0.497)	(-0.050)
UMP-T		
Local Policy rate		**5.34**
		(-2.680)
market factor	**5.96**	5.63*
	(-2.894)	(-2.790)
signal factor	**13.01*****	**13.43**
	(-0.747)	**(-4.722)**

Note: Robust standard errors are reported in parenthesis. ***, **, * denotes statistical significance at 1%, 5% and 10%, respectively.

Conclusions

- We distinguish the different dimensions of U.S. monetary policy surprise, and analyze the impact of Feds actions on Latin American (LATAM) economies.

- Loosening US monetary surprises were associated with higher equity prices, stronger currencies, and lower sovereign bond yields and CDS. In contrast, we find negative spillovers from monetary surprises after the Tapering Talk.

- Turning to the transmission channels, we find that the portfolio rebalancing channel played a key role, and that macroeconomic fundamentals and market size matter for investors to differentiate across countries.