

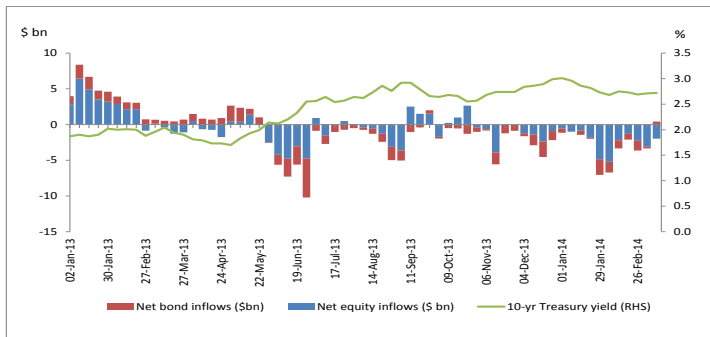
The Impact of U.S. Monetary Policy Normalization on Capital Flows to EMEs

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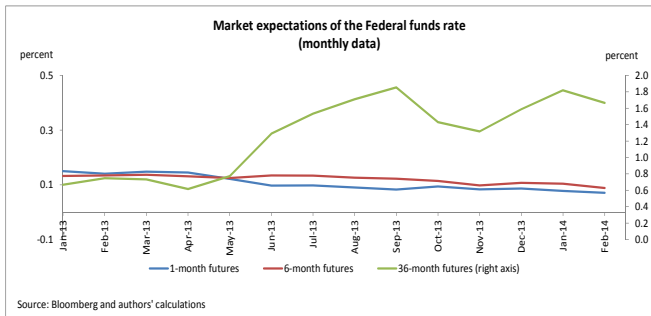
Introduction

Many EMEs experienced a sharp withdrawal in private capital flows in the second half of 2013.



Introduction

Markets were not expecting a quick move to raise interest rates though.



This paper

- Examines the potential impact of U.S monetary policy normalization on portfolio flows to EMEs using a VAR model.
 - Accounts for market expectations of future path of short-term interest rate
- “Policy normalization” shock - increases both the long-term spread as well as monetary policy expectations while leaving the policy rate per se unchanged.
- Monetary policy expectations are derived from Federal funds futures contracts at a long-term horizon.

Literature Review

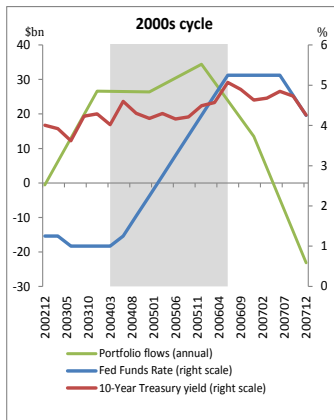
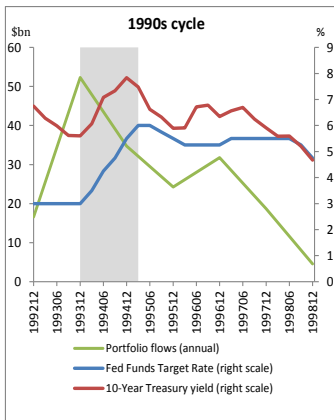
- Impact of news about Fed tapering on EM exchange rates, interest rates, and asset prices:
 - Event study approach: Eichengreen and Gupta (2014), Mishra et al. (2014), etc.
- U.S. monetary policy expectations:
 - FFR futures data: D'Amico and Farka (2011), Gurkaynak (2005), Hamilton (2008), Kuttner (2001)
 - Futures-based surprises in classic MP VAR: Barakchian and Crowe (2013), Gertler and Karadi (2015)
- Extant literature on determinants of capital flows to EMEs, including role of U.S monetary policy.
- Relation between capital flows and U.S. monetary policy *expectations* has not received much attention.

Ex ante it is unclear what the effects of U.S. monetary policy normalization on capital flows are:

- 1 Rising U.S. interest rates will likely decrease the demand for developing country assets and increase the cost of external borrowing for EMEs.
- 2 A stronger U.S. economy will be beneficial for EMEs as it means stronger demand for their exports.

Lessons from the Past

- Evidence from former Fed tightening cycles is mixed.



Data

Capital flows:

- 23 EMEs: Argentina, Brazil, Bulgaria, Chile, China, Colombia, Czech Republic, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukraine, and Venezuela.
- Monthly EPFR data on (net) portfolio capital flows (equity and bond flows) into EM-dedicated funds.
 - EPFR data is being increasingly used in academic research on capital flows.
- Sample: January 2004 to January 2014.

Data

Monetary policy expectations:

- Proxy based on Federal funds future contracts at the 36-month horizon.
- Each observation is the expected Federal funds rate 36 months later.
- Using a long-term horizon avoids problems with the ZLB, i.e., expectations are flat at short-term horizons.
- Data availability:
 - FFR futures: January 2011 onwards
 - Eurodollar futures: before 2011

Empirical Framework

- 1 Extract a common factor from portfolio flows to EMEs.
 - Literature has documented co-movement of capital flows, e.g., Forster et al. (2012), Fratzscher (2012), and Puy (2013).
- 2 Estimate a VAR model containing U.S. variables and the estimated capital flow factor.
 - Identify a “policy normalization” shock and assess its effects on portfolio flows to EMEs.

Factor Estimation

Factor model representation:

$$\begin{aligned}W_t &= \chi_t + \xi_t \\ &= \lambda' F_t + \xi_t,\end{aligned}\tag{1}$$

- χ_t is the common component of W_t
- ξ_t is the idiosyncratic component
- F_t is a $r \times 1$ vector of "common" or "static" factors
- λ is an $r \times N$ matrix of factor loadings
- Estimated by method of principal components

VAR Model

VAR model:

$$y_t = \alpha + A(L)y_{t-1} + u_t \quad (2)$$

- y_t contains 7 variables:
 - 1 Federal funds rate
 - 2 Spread between the US 10-year Treasury yield and Federal funds rate
 - 3 36-month Federal funds futures contracts
 - 4 U.S. IP growth
 - 5 U.S. inflation
 - 6 Implied U.S. stock market volatility (VIX)
 - 7 Common factor of capital flows

VAR Model

- Including the common factor of capital flows in the VAR model allows us to calculate the effects of Fed policy normalization:
 - On capital flows to individual countries
 - On aggregate flows
- VAR includes 1 lag (chosen by AIC and BIC)
- Estimated using standard Bayesian methods (i.e., Gibbs sampler)

“Policy normalization” shock: Identification

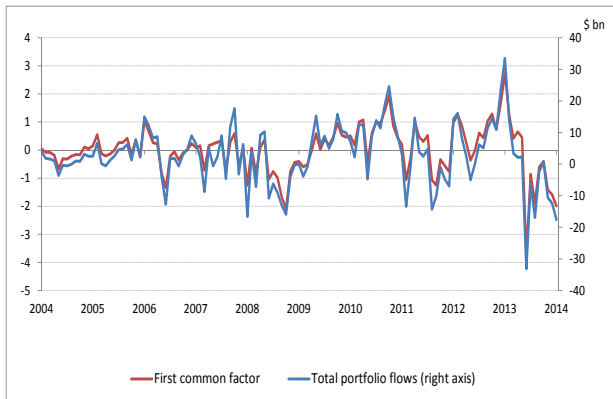
We use a mixture of zero and sign restrictions. A “policy normalization” shock

- has no effect on the FFR on impact (ZLB).
- Increases the 10-year Treasury yield spread and expectations of the future FFR.
 - Expectations theory of the term structure
 - After the Bernanke testimony in May 2013 both variables moved in tandem [▶ Graph](#)
 - Market participants likely reacted to both changes in long-term yields and in expectations of the Federal funds rate

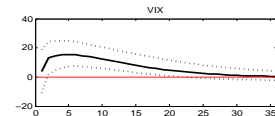
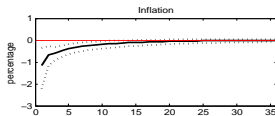
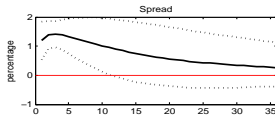
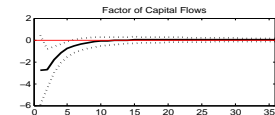
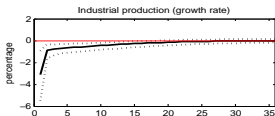
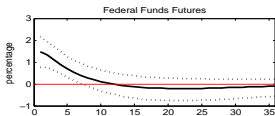
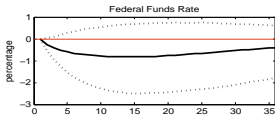
“Policy normalization” shock: Identification

- Decreases economic activity and prices
 - Evidence for a negative relationship between the term spread and economic activity, e.g., Eickmeier and Hofmann (2012); Gilchrist et al. (2009); Rudebusch et al. (2007).
- Restrictions similar to Baumeister and Benati (2013) used to identify a “spread” (QE) shock
- Responses of common factor of capital flows and VIX left unrestricted

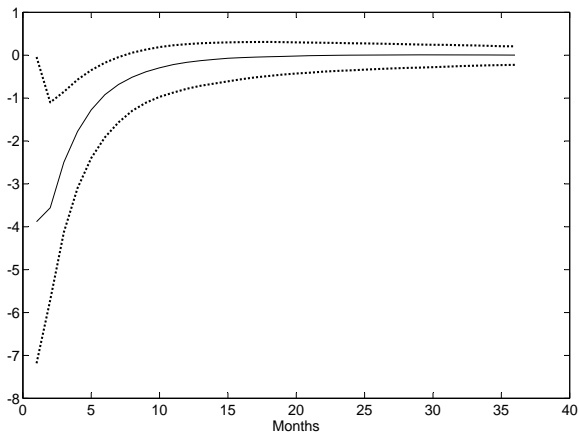
Co-movement of Capital Flows



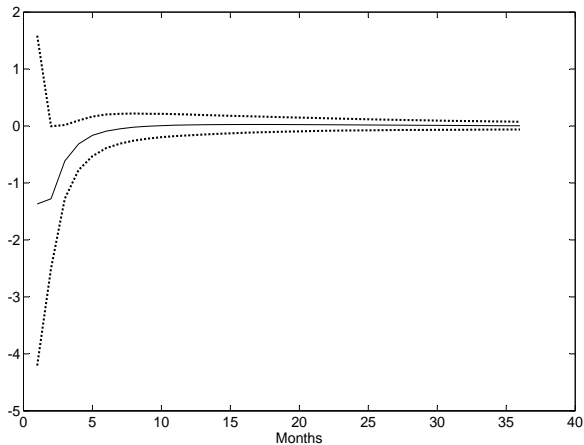
“Policy normalization” shock: Impulse responses



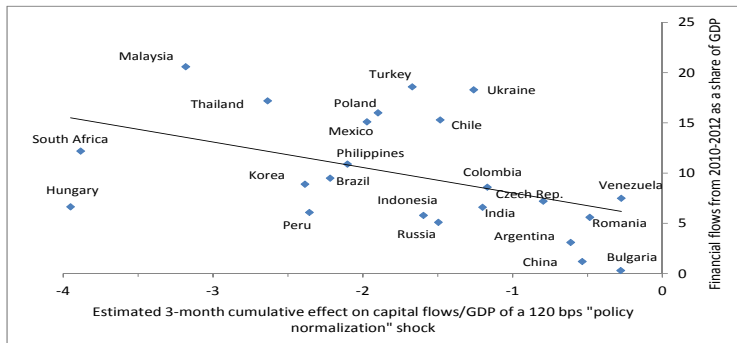
Common factor of bond flows



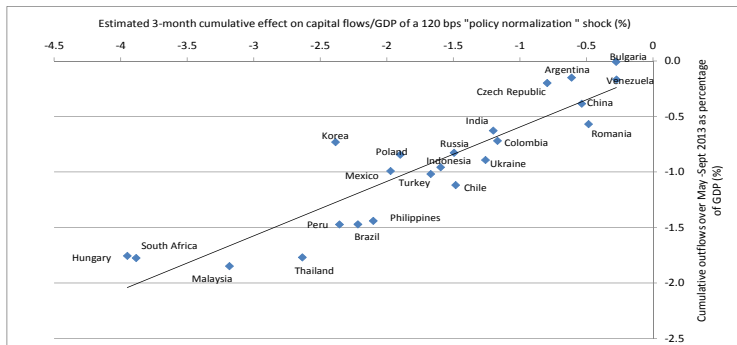
Common factor of equity flows



The countries identified as being the most affected are the ones that received greater financial inflows prior to 2013.



Strong association between countries identified as being the most affected and the ones that saw greater outflows over May-Sept 2013.



Conclusion

- This paper studies the effect of Fed policy normalization on portfolio capital flows to EMEs.
- Contributes to the literature by accounting for the role of monetary policy expectations in driving capital flows using a structural model.

Conclusion

Results show:

- Effects of U.S monetary policy normalization on capital flows are rather muted.
- Size of inflows received prior to 2013 matters.
- Effects are in line with the response of capital flows seen from May to September 2013.
- Bond flows respond slightly more than equity flows.

Thank you