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Unconventional monetary policy and capital flows

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ABSTRACT

This paper examines the connection between the stance of domestic monetary policy and international capital flows. It first provides a simple theoretical framework describing the mechanisms behind the cross-border spillovers of domestic monetary policy. Then, it empirically investigates the impact of U.S. unconventional monetary policies (UMPs), implemented in the aftermath of the recent global financial crisis, on U.S. capital flows to developing economies and non-UMP advanced economies. The results suggest that the use of quantitative easing by the Federal Reserve has been associated with increased net portfolio flows to developing countries and, to a lesser extent, non-UMP advanced economies. An exit from these UMPs is likely to cause capital flow reversals in U.S. capital-importing countries. Countries with greater exchange rate flexibility, stronger fiscal and current account positions, and higher capital mobility are likely to fare well following an exit from UMPs in the U.S.

1. Introduction

The issue of the global implications of the unconventional monetary policies (UMPs), implemented in advanced economies (AEs) since the 2008–09 financial crisis, attracts attention from both economists and policymakers.[1] These UMPs have addressed short-term financial vulnerabilities, in line with their intended objectives, but at the same time raised the question of possible tail risks in the medium term (IMF, 2013a).[2] On the one hand, by providing long-term liquidity to banks and lowering long-term interest rates, UMPs have helped strengthen bank health and financial stability and supported aggregate demand in the short term in UMP AEs. On the other hand, although these unconventional monetary measures are likely to be followed by capital flows to emerging market and developing economies (EMDEs) and non-UMP AEs, there are concerns about the implications of the future normalization of the U.S. monetary policy for U.S. capital-importing countries.

Such concerns are historically motivated by the 1997–98 Asian crisis caused by a boom-and-bust cycle in response to surges in capital inflows. Another reason supporting these concerns is that the Fed previous tapering announcements have induced large outflows from both EMDEs and Non-UMP AEs to the U.S., reversing earlier inflows. In addition, the favorable economic prospects in the U.S. reinforce the market sentiment of a future exit from UMPs and increase the risk that investors will suddenly repatriate funds to the U.S. In this setting, U.S. capital-importing countries may face exchange rate overshooting and, possibly, balance of payments disruptions, notably in economies with weaker economic outlooks.[3]

The literature identifies three main channels through which monetary policy affects economic activity and prices: the interest rate channel, the exchange rate channel, and the credit channel. Unconventional monetary policies, most notably bond purchases, may have large international effects on long-term nominal bond yields (Neely, 2010). This connection is supported by two main arguments, namely the signaling effect and the portfolio folio rebalancing (scarcity and duration) effect (IMF, 2013b). The signaling effect is related to changes in expected future short rates on days of UMP announcements, whereas the portfolio rebalancing channel is related to changes in term premia. In a financially integrated world, these arguments explain why the stance of monetary policy in key AEs, as

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[1] Examples of the crisis-related unconventional policies include the use of Quantitative Easing (QE) by the United States Federal Reserve (Fed), the Funding for Lending Scheme implemented by the Bank of England, the use of Outright Monetary Transactions (OMT) by the European Central Bank, and the use of quantitative and qualitative easing (QQE) by the Bank of Japan.

[2] The objectives of such policies mainly include: (*i*) easing monetary conditions at the zero lower bond, (*ii*) addressing money market dysfunction, and (*iii*) improving the transmission of monetary policy (IMF, 2013c).

[3] UMPs also carry medium term risks to financial stability in UMP AEs. We do not focus on such risks, as they have been widely addressed in the empirical literature (See, for instance, Valencia, 2015; Meinusch and P, 2015; Wang et al., 2015).

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the U.S., if permanent, might spill over to influence asset prices and portfolio investments around the world.

This paper is related to two bodies of the literature. The first one assesses the macroeconomic effectiveness of the unconventional monetary measures implemented in the aftermath of the recent global crisis (Chinn, 2013; Dedola et al., 2013; IMF, 2013c; Peersman, 2011; Stone et al., 2011). The main lesson that emerges from this literature is that the recent UMPs conducted in AEs succeed at achieving their domestic objective of addressing short-term financial vulnerabilities, but they imply medium term risks at the domestic and international levels. The second strand of the literature examines the determinants of international capital flows (Ahmed and Zlate, 2013; Calvo et al.,1996; Edwards, 2007; Portes and Rey, 2005). Here, one of the main drivers identified is the interest rate differential, particularly the differential relative to interest rates in advanced economies.

Furthermore, recent studies underline the role of UMPs in AEs in explaining the recent surges in capital inflows in EMDEs. However, with very few exceptions (Fratzscher et al., 2011; Fratzscher, 2012), they consider total instead of bilateral inflows, thus failing to identify and separate the effect of UMPs on capital flows. In addition, very little attention has been paid to the role of recipient countries' institutions in absorbing these inflows, while minimizing their adverse effects. The role of the country-specific determinants (the "pull" factors) in absorbing large capital inflows and improving the country resilience in the event of an exit from UMPs is still unclear.

This study is one of the first to estimate the impact of U.S. unconventional monetary on capital flows, using bilateral flows. We first develop an analytical framework to derive empirically testable implications on the connection between national monetary policies and international portfolio investment flows. We then empirically estimate the impact of the Fed unconventional measures since the onset of the recent global financial crisis on U.S. capital flows to EMDEs and non-UMP AEs. We also look at the effect of a potential exit from these UMPs on the probability that a country experiences a capital reversal.

The organization of the paper is as follows. Section 2 presents the theoretical connection between the stance of domestic monetary policy and portfolio investment flows. Section 3 provides the empirical strategy adopted and Section 4 describes the data used. Section 5 presents the core results and some sensitivity tests, while Section 6 focuses on the resilience of U.S. capital-importing countries in the event of an exit. Section 7 concludes and draws some policy implications.

2. Domestic monetary policies and cross-border capital flows: a simple framework

In this section, we develop a simple-to-understand framework to explore the role of national monetary policies in the short run determination of cross-border capital movements. This framework builds on the standard international macroeconomic model of exchange rate determination (See, for instance, Dornbuch (1976), Frankel (1979), Woodford (2010)). In addition, although we are interested in a partial equilibrium determination of exchange rate, this framework is also related to the New Keynesian Dynamic Stochastic general equilibrium analysis of forward guidance for monetary policy (See, for instance, Del Negro et al. (2015), Chor and Eichenbaum (2005)).

Consider a "small" open domestic economy (Home) and a "large" open foreign economy (Foreign).[4] There are two main arguments explaining why the stance of monetary policy affects international capital flows. First, according to the Keynesian IS–LM framework, changes in the domestic money supply generate changes in domestic real interest rates, which in turn influence the domestic–foreign real interest rate differential, all other things being equal. Changes in cross-border real interest rate differentials in turn determine international capital flows: the interest rate channel.

Second, in open economies, changes in the domestic money supply generate changes in the real exchange rate. A real depreciation/appreciation in turn, by reducing/increasing the value of domestic currency against foreign currencies, influences domestic–foreign cross-border capital flows, all else being equal: the exchange rate channel.[5] Assuming capital mobility between Home and Foreign, a Foreign investor facing the choice of investing either in Foreign assets or in Home assets needs to consider the Home–Foreign interest rate differential and the exchange rate risk in Home.

In this setting, the standard covered interest parity condition states that the interest rate on Foreign assets equals the interest rate on Home assets plus the forward premium (the forward discount) on the Foreign currency against the Home currency.

$$r^* = r + \frac{E^e - E}{E} = r + \delta \tag{1}$$

where E is the nominal exchange rate defined as the units of Foreign currency per unit of Home currency and E^e is the forward rate. The forward discount is therefore the percentage excess of the forward rate over the current spot rate (δ).

The money market clearing gives the following equilibrium conditions, respectively in Home and Foreign:

$$M/P = L(r, \ldots) \tag{2}$$

and

$$(M/P)^* = L^*(r^*, \ldots) \tag{3}$$

Solving Eqs. (2) and (3) gives the equilibrium interest rate as a function of real income, for Home and Foreign respectively:

$$r = r(M/P, \ldots) \tag{4}$$

and

$$r^* = r^*((M/P)^*, \ldots) \tag{5}$$

Substituting Eqs. (4) and (5) in Eq. (1) yields:

$$r^*((M/P)^*, \ldots) = r(M/P, \ldots) + \delta \tag{6}$$

Differentiating Eqs. (4)and (5) gives:

$$dr = \frac{L}{L_r} \times \frac{dM}{M} \tag{7}$$

and

$$dr^* = \frac{L^*}{L^*_{r^*}} \times \frac{dM^*}{M^*} \tag{8}$$

[4] All foreign variables will be starred.

[5] The credit channel may also play a role in the monetary policy transmission. See, for instance, Bernanke and Gertler (1995) for further discussion on the monetary policy transmission mechanism.