COMMENTARY

Monetary Policy "Contagion" in the Pacific Basin: A Historical Inquiry

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The paper by Sebastian Edwards specifies a single-equation error correction model and estimates it with least-squares and instrumental-variable (IV) methods using weekly data. It has two main findings. First, unsurprisingly, the six emerging market economies (EMEs) in his analysis adjust their policy rates in response to changes in the U.S. Federal Reserve policy rate. Second, and more interestingly, the degree of cross-border pass-through of U.S. interest rates differs between Latin America and Asia. The paper contributes to the literature on cross-border interest rate transmission by shedding light on EME responses to global interest rate changes.

From a theoretical perspective, spillovers from the U.S. policy rate to EME policy rates could be associated with three possible channels. First, an exogenous decrease in the U.S. policy rate can lead to more capital flows to EMEs, affecting domestic liquidity through a liquidity channel. Second, it may affect trade with EMEs through an aggregate demand channel, mainly working through trade linkages. Specifically, if increases in capital inflows with a lower U.S. policy rate lead to local currency appreciation, weaker demand for EMEs' tradable goods slows down their domestic economies, calling for lower policy rates. Lastly, a global supply shock such as lower energy and commodity prices—while exerting direct impacts on EMEs' inflation—could be fed into the U.S. policy rate, which in turn affects EMEs' inflation through a price channel.

The extent of EME policy responses depends on several factors. One factor is real and financial linkages. The higher is the degree of these linkages, the higher is the contagion from global shocks to domestic policy rates. Another factor is the relative pressure of global shocks on domestic output and inflation. With subdued inflation after the global financial crisis, monetary policy in most

Author's note: *The views expressed herein are those of the author and should not be attributed to the Bank of Korea or the International Monetary Fund.*

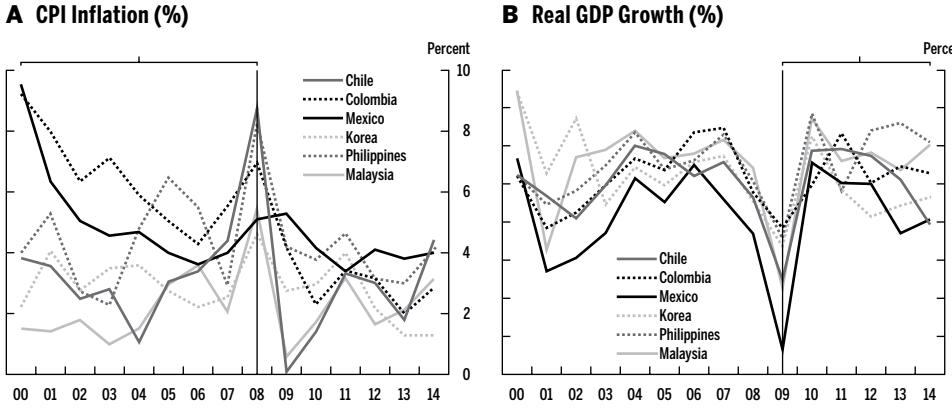
countries has focused more on reducing the output gap rather than inflation. A third factor is "policy space" in responding economies. An economy in which the policy rate is close to a lower bound will have a limited response to a U.S. policy rate cut. A country with limited foreign exchange reserves to intervene against abrupt capital outflows may have no choice but to raise its policy rate. Also, macroeconomic constraints associated with elevated foreign debt and household or corporate debt could restrict the use of interest rate policy.

Let me now briefly talk about recent related studies of my own. My colleagues at the Bank of Korea (BOK) and I (Choi et al. 2014) identified three channels through which global liquidity shocks may affect macro fundamentals and financial markets in EMEs. In our paper, U.S. policy tightening is equivalent to the withdrawal of policy-driven liquidity. Our more recent work (Choi et al. 2015) quantifies the effect of U.S. policy as well as EMEs' own policies on their macro fundamentals and capital flows. I will discuss this paper further in the last part of my remarks. The key result of Edwards is that a 1 percentage point hike of the U.S. federal funds rate increased policy rates in the selected EMEs by 33 to 74 basis points (bps). This result suggests a strong spillover effect. However, our work finds a modest spillover of 4 to 12 bps. Our work differs from that of Edwards in several respects. In particular, the Fed tightening in the 2000–08 period considered by Edwards is largely attributable to the desire to dampen inflation, whereas Fed policy actions after the global financial crisis have been associated more with responding to an output slowdown and slow recovery. This may matter, since the transmission of interest rates may depend on whether monetary policy is driven by the output gap or inflation.

The policy responses of EMEs may also differ depending on how well their economic fundamentals make them resilient to foreign shocks, as well as on the relative importance of output and inflation as policy goals (see Figure 1).

As regards Edwards' estimation methodology, I have two comments. First, when gauging the long-term spillover to domestic deposit rates, he includes a number of control variables, such as domestic inflation, the U.S. 10-year Treasury bond rate, and domestic policy rates. The policy rate, short-term deposit rate, and U.S. federal funds rate, however, are not negligible in the long run and could be cointegrated. This implies that the cross-border pass-through of interest rates may differ from the domestic pass-through along the yield curve. Second, endogeneity controls and tests for instrument validity should also be checked. For example, expected currency depreciation and emerging market risk premia could be affected by the dependent variable (either the policy rate or short-term deposit rate). I'd like to see more results about the adequacy of the instruments he uses in his IV estimation.

FIGURE 1
Macroeconomic Conditions in EMEs



My second comment pertains to the implications of recent developments in cross-border flows. Changes in the financial landscape suggest that debt flows are becoming increasingly more important in cross-border financial flows as the United States and other advanced economies normalize interest rates. This matters because global funding network analysis indicates that debt flows are not balanced among countries whereas equity flows are largely balanced.

As shown in Figure 2, since the global financial crisis, the share of EME corporate debt in bonds has edged up from 9 percent to 17 percent, whereas that in domestic bank loans has declined from 84 percent to 78 percent.

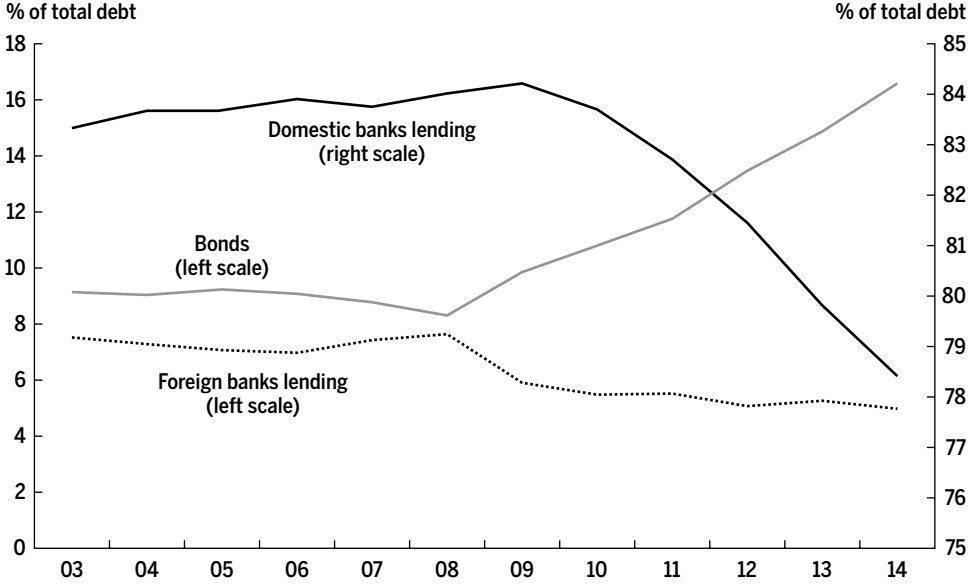
Figure 3 shows trends in global fund flows to emerging market and developed economies. Equity fund flows to EMEs have been declining since the global financial crisis. In contrast, bond inflows to EMEs have risen. I conjecture that U.S. interest rate hikes could encourage greater bond flows to developed economies.

According to BOK calculations, global banking networks have evolved as well recently. From end-2011 to end-2014, euro-area banks have become relatively less active, while China banks have become more active in global lending and borrowing.

Let me conclude by further discussing my current work with colleagues at the BOK in which we explore three questions. First, how do U.S. interest rate hikes affect capital flows in EMEs? Second, are there any diverging responses across EMEs? Third, what is the link between fundamentals of EMEs and the extent of their output loss from a global liquidity shock?

FIGURE 2

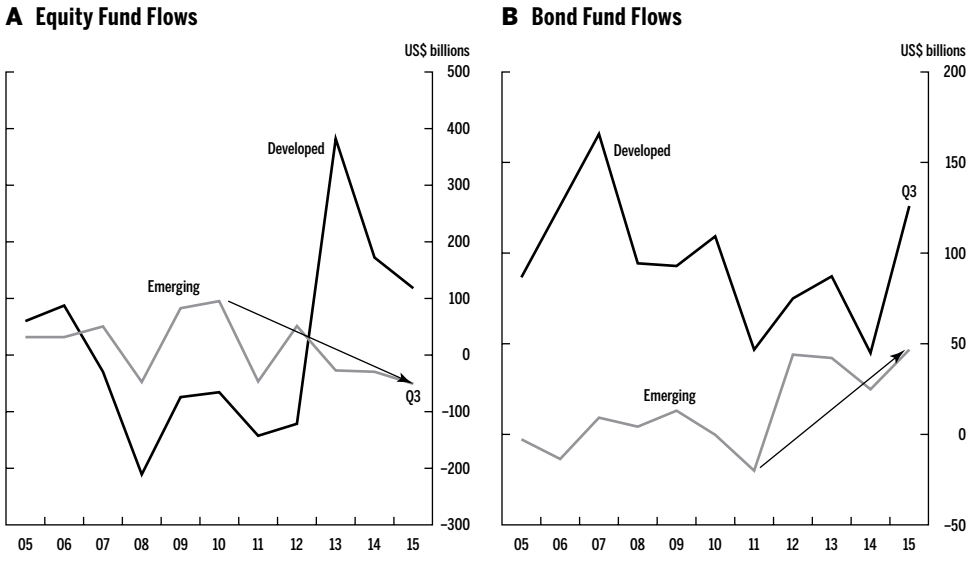
Composition of EME Corporate Debt: Bonds vs. Loans



Source: IMF Global Financial Stability Report 2015.

FIGURE 3

Global Equity and Bond Flows



Source: EPFR (Emerging Portfolio Fund Research).

In Choi et al. (2015), we find that a U.S. interest rate hike has a stronger effect than a domestic interest rate hike on domestic financial conditions, as a U.S. monetary tightening causes capital outflows from EMEs, creating pressure on their bond markets. We also find that EMEs with strong fundamentals are less affected by the shrinkage of global liquidity.

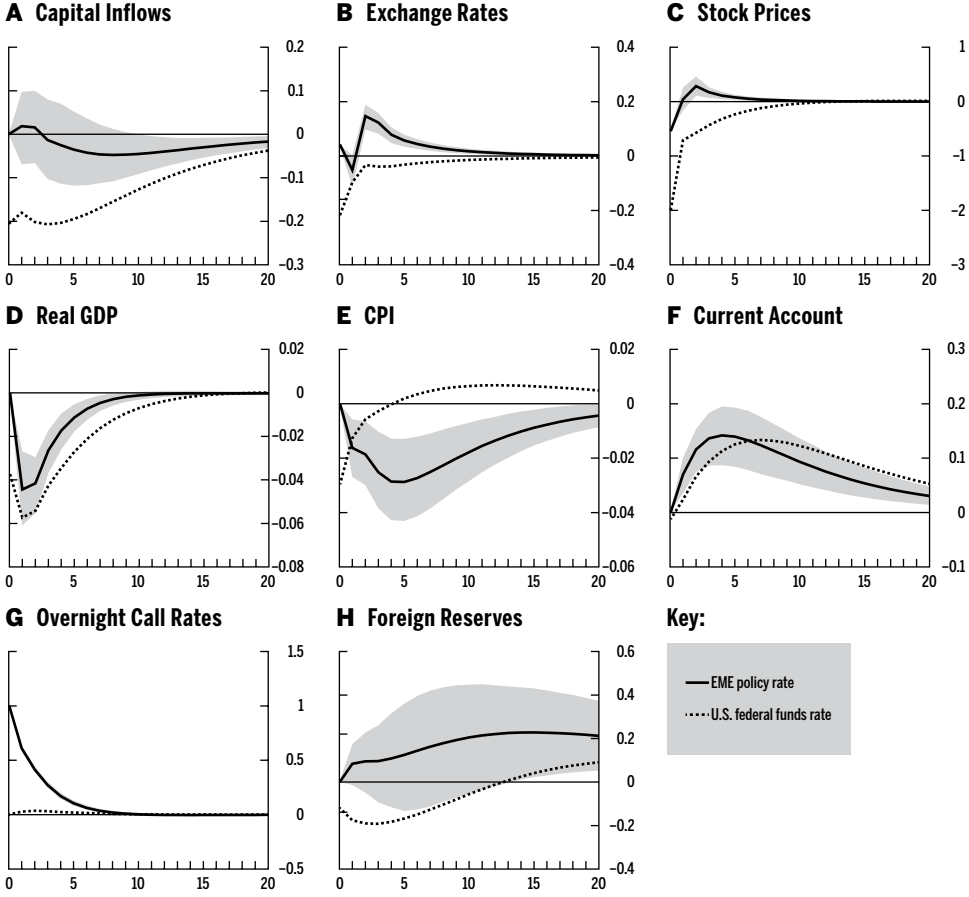
The empirical model used in our study is described in detail in a companion paper, Choi et al. (2014). EME variables include real gross domestic product (GDP), consumer price index, stock prices, nominal effective exchange rates, and capital inflows. Two policy variables, overnight call rates and foreign reserves, are also included. The panel comprises 19 EMEs from 1995:Q2 to 2014:Q3. Three global liquidity factors—a policy-driven liquidity factor, a market-driven liquidity factor, and a risk-aversion factor—are identified from the financial data of G-5 countries using a factor model with sign restrictions. The financial variables used to generate the factors include the policy rate, domestic credit, international claims, lending rate spread, government bond yield, monetary base (M0), real interest rate, stock price, and stock price volatility.

Figure 4 depicts the impulse responses to a 1 percentage point increase in EME policy rates (solid lines) and the U.S. policy rate (dashed lines), where the U.S. policy rate hike is interpreted as a decrease in the policy-driven global liquidity factor in the model. Observe that the U.S. policy rate hike is followed by the reversal or suspension of capital inflows and a lower, i.e., depreciated, exchange rate and lower stock prices (see Choi et al. 2014 for the error bands of EME responses to the U.S. policy rate hike). The liquidity decline in domestic financial markets also directly decreases aggregate demand, as evidenced by weaker output growth and lower inflation. The negative wealth effect from both a weaker domestic currency and lower stock prices exacerbates the situation. Weaker domestic absorption results in a current account surplus. Lastly, the policy response of domestic authorities appears to be limited. The maximal response of the policy rate is only 4 bps in response to a 100 bps hike in the U.S. policy rate. This degree of policy spillover is weaker than in other studies, including that in Edwards' paper.

Figure 4 also depicts impulse responses to a 1 percentage point increase in the EME policy rate (solid lines). The estimated effects of EMEs' domestic policy rate hike are largely consistent with the theoretical predictions of standard open-economy macroeconomics. On the real front, tighter domestic monetary policy reduces output growth and inflation in EMEs. On the financial front, EME policy tightening has weaker effects on capital flows and stock prices than does U.S. policy tightening. Capital inflows initially increase in response to higher domestic policy rates but are later reversed. In addition, the domestic

FIGURE 4

EME Responses to Tighter U.S. or EME Monetary Policy



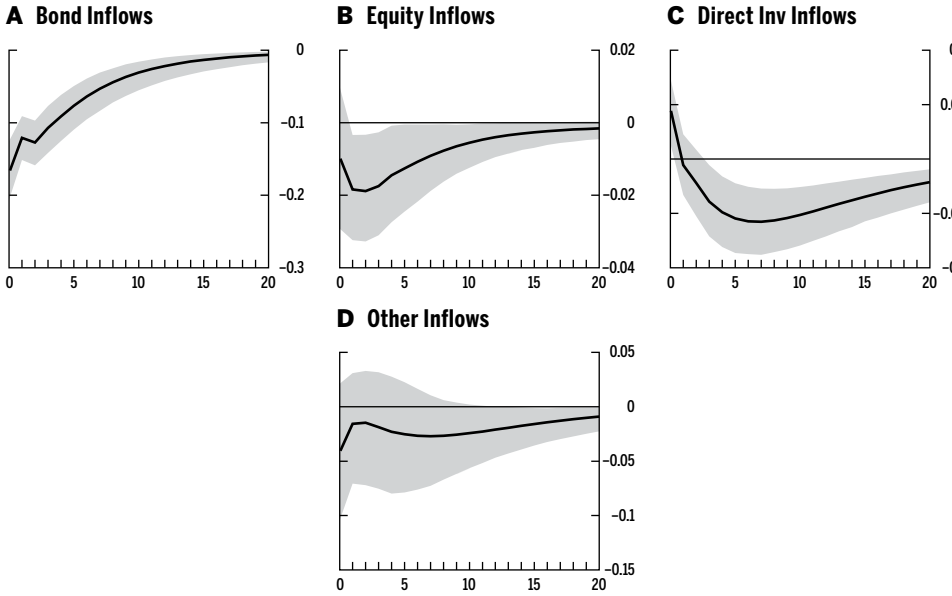
Notes: The figure depicts responses of EMEs to a 1 percentage point hike in the U.S. policy rate (dotted lines) or EME policy rate (solid lines). Responses generated from the factor-augmented panel VAR based on 19 EMEs for 1995:Q1–2014:Q3 (Choi et al. 2015). All variables except stock prices and exchange rates (real effective exchange rate, REER) are seasonally adjusted by X-13 ARIMA-SEATS program of the U.S. Census Bureau. Variables are measured as annualized quarterly growth rates (real GDP, CPI, stock prices, and REER) or as percent of nominal GDP, previous five-year average (capital flows, foreign reserves, and current account). All numbers are in percent. The shaded areas mark the bands between 16 percent and 84 percent of responses to the EME policy rate hike.

currency appreciates after two quarters, reflecting tighter domestic liquidity. For stock prices, the initial decline is quickly reversed.

We also examine whether withdrawal of global liquidity following tighter U.S. monetary policy affects the composition of cross-border capital inflows to EMEs. As shown in Figure 5, all types of capital inflows declined, but the extent of the decline varies. Foreign bond investment flows declined the most. Equity

FIGURE 5

Responses of Capital Flows to the U.S Policy Rate Hike



Note: See notes to Figure 4.

inflows fall only marginally. Direct investment by foreigners initially increases but quickly reverses to exhibit a persistent negative response.

The 19 EMEs can be categorized into high- and low-inflation-country groups. The high-inflation-country group includes Argentina, India, Hungary, Mexico, Indonesia, Russia, Romania, Bulgaria, and Turkey. The rest of the sample consists of low-inflation EMEs but excludes Brazil, which is at the midpoint of EMEs. The high-inflation EMEs experienced average annual inflation of 14 percent, while average inflation in the low-inflation countries was 4 percent. In response to a 1 percentage point hike in the U.S. federal funds rate, the low-inflation EMEs absorbed the shock with smaller swings in real GDP and inflation than did the high-inflation EMEs. However, policy responses through changes in overnight call rates and foreign reserves were diverging. Policymakers in the high-inflation EMEs generally raised their policy rates after U.S. policy tightening, consistent with the existence of policy spillovers. In contrast, the low-inflation EMEs lowered their policy rates after an initial increase, plausibly to moderate the adverse impacts of the U.S. funds rate hike on the real front. The loss of domestic real GDP from U.S. policy tightening is 0.3 percentage point greater for the high-inflation EMEs than for the low-inflation EMEs.

To see whether these differing responses are attributable to the EMEs' policy reaction rules or to their domestic economic characteristics, we employ a method used by Stock and Watson (2002). Specifically, we replace the estimated parameters associated with endogenous dynamics in the empirical model of the high-inflation EMEs with the corresponding parameters for the low-inflation EMEs. This counterfactual exercise suggests that the high-inflation EMEs would have experienced little improvement by mimicking the domestic economic structure of low-inflation EMEs. Hence, what matters most is the way the high-inflation EMEs respond to the global liquidity shock.

To summarize, Edwards' analysis shows that U.S. monetary policy affects EMEs' policy rates through "policy contagion" and suggests that macroeconomic stability in EMEs could be affected by the cross-border pass-through of policy rates. In the face of global interest rate normalization, policy rate pass-through may depend on policy space and the mix of available policy tools in EMEs.

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