

# Spillovers of Conventional and Unconventional Monetary Policy:

## The Role of Real and Financial Linkages

By Mark A. Wynne



and Julieta Yung



Central banks around the world launched extraordinary monetary policy responses to the global financial crisis of 2007–09 and the European debt crises that began in 2010. Some were coordinated; all were directed at fulfilling domestic mandates for price and financial stability and supporting real economic activity.

Fears that the dramatic expansion of central bank balance sheets (*Chart 1*)—a concomitant of the unconventional part of the policy response—would lead to higher inflation at the consumer level have so far proven unfounded, whether due to still abundant slack in many countries or to well-anchored inflation expectations.

But it has been argued that an extended period of ultra-easy monetary policy is manifesting itself in excessive risk taking, bubbles in certain asset classes and price pressures in countries that are recipients of internationally mobile capital. This capital, in search of higher yields, could ultimately lead to higher inflation globally.

The experience of recent years has challenged our understanding of the transmission of monetary policy across national borders as well as the implications of financial interconnections and the global financial cycle for inflation spillovers and monetary control. Moreover, it has prompted us to reconsider the short- and long-run tradeoffs between structural reforms and monetary policy during international crises and the global implications of policy responses to the financial crisis.

To discuss these topics, the Federal Reserve Bank of Dallas Globalization and

Monetary Policy Institute, together with the Swiss National Bank (SNB), the Bank for International Settlements (BIS) and the Center for Economic Policy Research (CEPR), organized a one-and-a-half-day conference in Zurich, Switzerland, on July 9–10, 2015. The conference was the latest in a series that the institute and the SNB have held to discuss monetary policy in an international context since 2011.

The conference opened with a keynote speech from Thomas Jordan, chairman of the SNB governing board. Jordan noted the centrality of the issues to be discussed to monetary policy deliberations in a small open economy like Switzerland. The safe-haven status of the Swiss franc makes Switzerland even more susceptible to international spillovers in times of economic stress. Unconventional monetary policy in Switzerland took the form of a floor on the Swiss franc-euro exchange rate (at 1.20 CHF per euro), which was abandoned in early 2015 when it proved unsustainable. The deflation at the consumer level that Switzerland has experienced since the onset of the crisis is undesirable from a central bank perspective and is only sustainable as long as inflation expectations are anchored. The SNB would prefer a situation where the value of the Swiss franc was better aligned with economic fundamentals.

### The New Normal

Having set the stage for the conference deliberations, Menzie D. Chinn, from University of Wisconsin–Madison, opened the conference by presenting joint work with Joshua Aizenman (University of Southern California) and Hiro Ito (Portland State University),

### 2015 Conference Summary

**When:** July 9–10

**Where:** Swiss National Bank, Zurich

**Sponsors:** Federal Reserve Bank of Dallas  
Globalization and Monetary Policy Institute,  
Swiss National Bank, Bank for International  
Settlements, Center for Economic Policy  
Research

“Monetary Policy Spillovers and the Trilemma in the New Normal: Periphery Country Sensitivity to Core Country Conditions.”

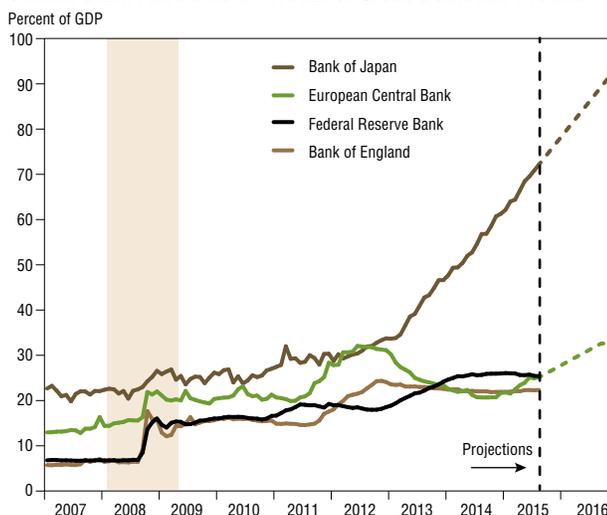
Monetary policy makers in countries around the globe routinely track developments in the major economies. In mid-2015, attention was focused on the long-awaited normalization of monetary policy in the United States, or “liftoff.” Small open economies are particularly sensitive to policy changes in countries such as the U.S., the euro area, Japan and China, the major global “economic centers.”

The extent of their sensitivity to core economies’ conditions, however, differs across policy regimes and also varies with economic structures. The main question Chinn and his co-authors addressed is how sensitivity to core economies’ conditions differs across countries and changes over time for different types of financial variables. More importantly, does the exchange rate regime play a significant role in determining the extent to which a country is linked to center economies?

Central to all of international macroeconomics is the idea of the “trilemma” or “impossible trinity,” which states that it is impossible to simultaneously have a fixed exchange rate, no controls on the cross-border movement of capital and an independent monetary policy. One of the three must be sacrificed. Chart 2 illustrates the concept and how some countries have positioned themselves.

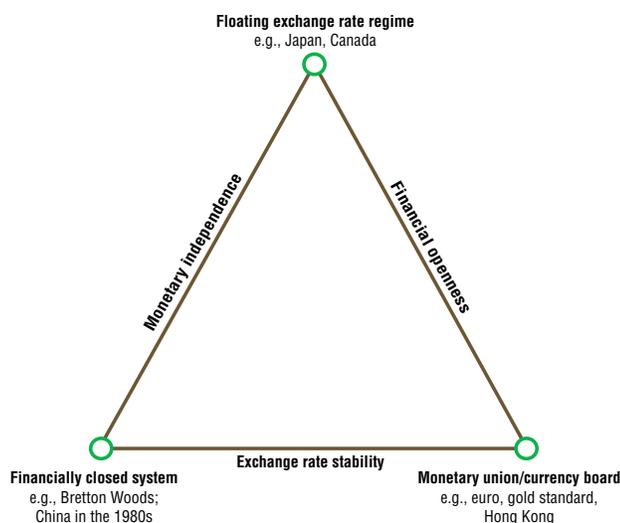
However, a widely cited paper by Hélène Rey (2015) argued that the global financial cycle in capital flows, asset prices and credit growth reduces the trilemma to a dilemma: Only by actively managing the capital account can periphery countries pursue a

Chart 1  
Central Bank Assets as a Percent of Gross Domestic Product



NOTES: Shaded bar indicates global recession. Dashed lines represent projections based on current purchase programs.  
SOURCES: National central banks; Organisation for Economic Cooperation and Development; Haver Analytics; authors’ calculations.

Chart 2  
How Nations Align Along Trilemma of International Finance



**“A debate is ongoing regarding whether, with free capital mobility, flexible exchange rates are sufficient to protect countries from external monetary and financial shocks.”**

genuinely independent monetary policy.

As Chinn and participants said at the conference, there is at least some evidence that sensitivity of policy interest rates in periphery countries to a center country’s interest rate depends on: 1) the exchange rate regime, 2) the degree of financial openness and 3) the level of financial development of the periphery country. This is consistent with what we would expect based on the trilemma.

In the last two decades, for most financial variables in periphery (developing and emerging-market) countries, the strength of the links with the center economies has been the dominant factor. While certain macroeconomic and institutional variables are important, Chinn and his co-authors conclude that the arrangement of open-economy macro policies such as the exchange rate regime and the degree of financial openness also directly influence the sensitivity of financial conditions in periphery countries to economic developments in the center economies. An economy that pursues greater exchange rate stability and has greater financial openness faces a stronger link with the center economies.

Michael Devereux from University of British Columbia, along with co-authors

Ryan Banerjee and Giovanni Lombardo from the BIS, also studied the increasing importance of spillovers from advanced economies (particularly the U.S.) to emerging markets in their paper, “Self-Oriented Monetary Policy, Global Financial Markets and Excess Volatility of International Capital Flows.”

In his presentation, Devereux used estimates of U.S. monetary policy shocks as identified by Romer and Romer (2004) and updated by Coibion (2012) to quantify the spillovers of U.S. monetary policy to a panel of emerging-market economies (such as Brazil, China, Indonesia, India, Malaysia, Mexico, Russia and South Africa) using the local projection methods of Jordà (2005). Devereux showed that a U.S. monetary policy shock tends to depreciate the exchange rate, decrease gross domestic product, boost consumer price inflation and subsequently lower it in the long run, increase policy and long-term rates, and lower portfolio debt inflows and outflows.

Devereux then sketched out a two-country New Keynesian model augmented to include financial frictions and financial linkages to explain the patterns in the data and to examine potential policy responses. Devereux showed that in the context of his model, an optimal cooperative monetary policy can greatly reduce effects of financial shocks and reduce most spillovers to emerging markets from shocks in advanced economies. However, even in an environment with multiple frictions in global financial intermediation, a self-oriented, discretionary monetary policy may be a reasonable arrangement for the international monetary system as well.

Given the increased volatility associated with the U.S. monetary policy stance, a debate is ongoing regarding whether, with free capital mobility, flexible exchange rates are sufficient to protect countries from external monetary and financial shocks.

Structural reforms have become a crucial component of the policy menu at a time when the conventional tools of demand-side macroeconomic policy are constrained, and

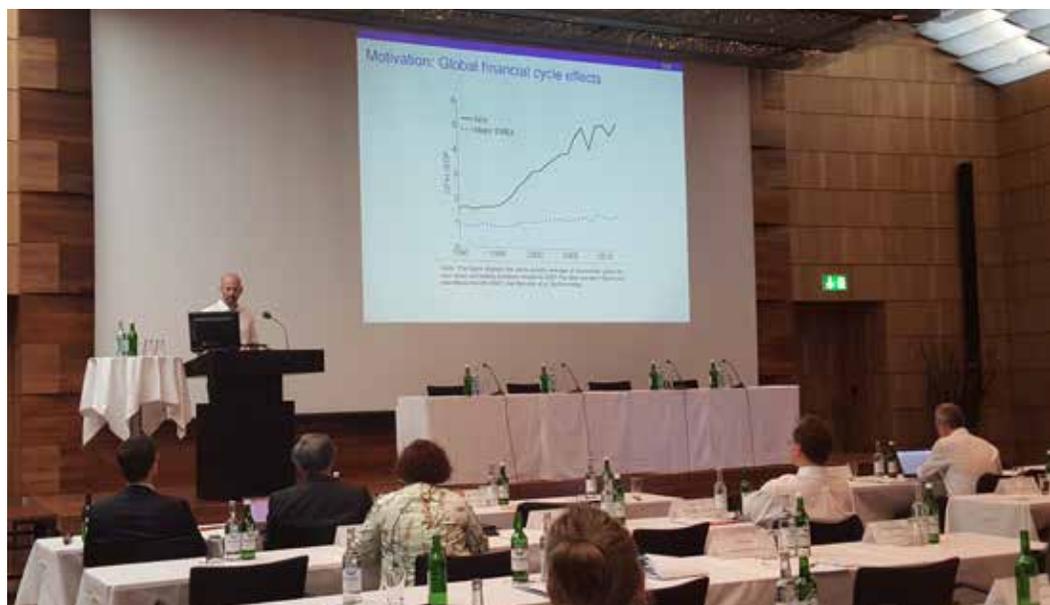


Mark A. Wynne, director of the Globalization and Monetary Policy Institute at the Federal Reserve Bank of Dallas, discusses the presentation, “If the Fed Sneezes, Who Catches a Cold?” by the European Central Bank’s Livio Stracca.

unconventional tools are being deployed without certainty of their effectiveness. (As former Fed Chairman Ben Bernanke noted in early 2014, referring to the quantitative easing programs that the Federal Open Market Committee implemented as part of its unconventional policy toolkit, “The problem with QE is that it works in practice, but not in theory.”) This was another topic of discussion, in which Matteo Cacciatore from HEC Montréal presented “Short-Term Pain for Long-Term Gain: Market Deregulation and Monetary Policy in Small Open Economies,” jointly with Romain Duval from the International Monetary Fund, Giuseppe Fiori from North Carolina State University and Fabio Ghironi from the University of Washington.

Cacciatore and his co-authors show that in the context of a New Keynesian small open-economy model, it takes time for reforms to pay off, typically at least a couple of years. This is because the benefits of reforms in their model materialize through firm entry and increased hiring, both of which are gradual processes that take time, while layoffs associated with reforms tend to happen immediately. All reforms considered in their work (individual reforms and simultaneous deregulation in product and labor markets) stimulate growth even in the short run, though some—such as reductions in employment protection—increase unemployment temporarily.

Overall, it seems that implementing a broad set of labor market reforms and product market reforms simultaneously helps minimize these transition costs. But, if monetary policy is constrained by the zero lower bound, comprehensive reforms may be less appealing to policymakers if they have significant deflationary effects. Cacciatore and his co-authors show that in the context of the model with which they work, reforms generally do not have significant deflationary effects. Thus, being up against the zero lower bound or being a member of a monetary union (without the possibility of setting a nationally oriented monetary policy) should not be an obstacle to adopting reforms.



Georgios Georgiadis of the European Central Bank gives his presentation on “Trilemma, Not Dilemma: Financial Globalisation and Monetary Policy Effectiveness.”

### The Role of Banks

Recent research stresses the impact on funding conditions in periphery or non-center countries resulting from monetary and financial shocks in so-called monetary center countries, whose currencies are used in international lending. While the U.S. dollar clearly plays a central role in the international monetary system, banks also make substantial use of other foreign currencies in their lending and funding. The euro and the Swiss franc notably play important roles in the activity of banks in Europe. This raises the question of how monetary and financial shocks in the home countries of those currencies are transmitted across borders through bank balance sheets and whether this transmission depends on the specific foreign currency used in bank funding.

Cédric Tille from the Graduate Institute, Geneva, presented work on the role of banks as a channel for transmission of foreign and exchange rate shocks to domestic banking and the impact on financial stability and macroeconomic performance. His paper, “What Drives the Funding Currency Mix of Banks?,” jointly with Signe Krogstrup of SNB, assesses the determinants of foreign

currency funding, including monetary policy, exchange rate movements, risk and deposits in foreign currencies.

Their work suggests that these determinants vary across currencies as well as countries. Swiss franc use in emerging European countries is affected by the exchange rate and lending volumes in the Swiss franc—in line with the predictions of a simple model. By comparison, risk-related considerations, such as co-movements between various exchange rates, matter for financial centers in the euro area, while funding costs play a role for other euro-area countries.

Funding in currencies other than the Swiss franc is also affected by exchange rates and lending activity among emerging economies, but overall displays less sensitivity than Swiss franc funding to movements in the various factors.

Additionally, in response to the global financial crisis, international currency swap lines between central banks of advanced economies and their counterparts in emerging-market economies were introduced as a coordinated policy initiative. Swiss franc and other foreign currency loans to the nonbanking sector were extremely popular

in Central and Eastern Europe before the financial crisis.

Households and small firms increasingly borrowed in a lower-yielding foreign currency to finance their mortgages or business investments. As the financial crisis escalated, so did funding tensions in Swiss francs. In this context, the SNB entered into temporary swap line agreements with several central banks between 2008 and 2010. Their objective was to improve the Swiss franc's global liquidity. This unconventional form of liquidity aid affected a broad array of financial assets, involving interest-rate spreads, credit default swap rates and exchange rates.

Pinar Yesin from the SNB presented her work with Alin Marius Andries from the Alexandru Ioan Cuza University of Iasi (Romania) and Andreas Fischer of the SNB, "The Impact of International Swap Lines on Stock Returns of Banks in Emerging Markets." The authors studied the response of stock prices of banks in 15 Central and Eastern European countries to the presence of international swap lines between the SNB and other central banks, paying particular attention to swap lines with

the National Bank of Poland and the Central Bank of Hungary. This allowed the authors to examine the importance of bank characteristics, such as foreign currency exposure, funding structure, ownership and capital structure, in response to liquidity provision.

Among the key results, Yesin suggested that stock prices of Central and Eastern European banks responded strongly to Swiss franc swap lines provided by the SNB during the crisis. Moreover, banks with different characteristics responded differently to swap lines, since the effectiveness of swap lines is partially dependent on the structure of the banking system. The authors argue that their findings are consistent with the view that swap lines not only enhanced market liquidity, as intended, but also reduced risks associated with micro-prudential issues.

### Global Effects

In the wake of the financial crisis, some of the world's largest central banks set their policy rates near zero and adopted unconventional monetary policies, such as forward guidance and large-scale asset purchases.

This new environment has led to a renewed interest in the role of monetary policy actions in the dynamics of asset prices, particularly interest rates and exchange rates and their global implications for financial contagion.

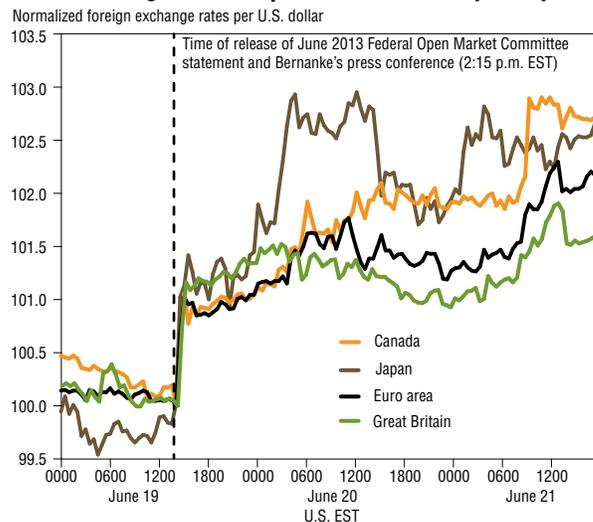
By affecting exchange rates and foreign interest rates, monetary policy shifts are a potential source of unintended spillovers onto other countries. Chart 3 shows how a U.S. monetary policy announcement can have significant cross-country effects through the exchange rate channel. The episode depicted was part of the so-called "taper tantrum," where the suggestion that the Federal Open Market Committee (FOMC) would at some point begin to taper its asset purchases precipitated large swings in asset prices.

John Rogers and Chiara Scotti of the Federal Reserve Board and Jonathan H. Wright from Johns Hopkins University explored the international effects of U.S. monetary policy shocks at the zero lower bound on U.S. and foreign interest rates at different horizons, exchange rates (Japanese yen, euro, British pound), financial market and foreign exchange risk premia, and a generalized carry-trade return (involving a portfolio that goes long on a foreign bond and short on a U.S. bond of the same maturity).

In their paper, "Unconventional Monetary Policy and International Risk Premia," the authors capture monetary policy shocks that lower five-year U.S. Treasury futures prices around a monetary policy announcement. Rogers suggested that U.S. monetary policy easing shocks lower domestic and foreign bond premia, lower interest rates globally and lead to dollar depreciation.

This was also a topic of discussion during Livio Stracca's presentation, "If the Fed Sneezes, Who Catches a Cold?" Stracca and Luca Dedola of the European Central Bank (ECB) and Giulia Rivolta from the University of Brescia find that U.S. monetary policy shocks, assumed to have standard domestic effects, impact advanced and emerging economies differently. In particular, U.S. monetary policy tightening brings about a contraction in economic activity and an increase in unemploy-

Chart 3  
**Dollar Exchange Rates Respond to U.S. Monetary Policy News**



SOURCES: Discussion by Mark A. Wynne of the presentation, "If the Fed Sneezes, Who Catches a Cold?"; authors' calculations.

ment in both advanced and emerging countries. But only in emerging economies does this also result in capital outflows, a domestic credit crunch and falling housing prices.

This situation relates to the monetary policy trilemma discussed throughout the conference. Emerging economies with more flexible exchange rates and lower capital mobility are better insulated from some financial repercussions of U.S. monetary policy. A dollar peg resulting in low capital mobility or a floating regime with high capital mobility are not as helpful. This lends further support to the idea that for emerging economies, the dilemma suggested by Rey (2015) may be more relevant than the classic trilemma, at least when it comes to spillovers of U.S. monetary policy.

The final presentation of the conference focused on the effectiveness of monetary policy relative to global financial cycle effects and net foreign exchange exposure effects. Global financial cycle effects are at the heart of the trilemma since they reduce control of domestic interest rates. Net foreign exchange exposures have been rising across countries by holding foreign assets in foreign currency and issuing foreign liabilities in domestic currency. This can strengthen the impact of monetary policy due to valuation effects. If the domestic currency appreciates after monetary policy tightening, the domestic value of foreign assets falls while the value of foreign liabilities remains unchanged, creating negative wealth effects on the external balance sheet.

Georgios Georgiadis of the European Central Bank (ECB) presented “Trilemma, Not Dilemma: Financial Globalisation and Monetary Policy Effectiveness,” joint work with his ECB colleague Arnaud Mehl, focusing on how financial globalization has affected monetary policy effectiveness differently in emerging markets and advanced economies.

The authors find evidence for global financial cycle and net foreign exchange exposure effects, with financial globalization having noticeably strengthened monetary policy effectiveness in advanced economies

and in emerging markets since the 1990s. In particular, while the traditional interest rate channel might lose significance due to the increasing influence of global financial markets on domestic financial conditions, the exchange rate channel may gain importance due to growing net foreign currency exposures of economies’ external balance sheets. As a result, the exchange rate channel matters not only because of its relevance for import/export prices and quantities but increasingly because of wealth effects.

### Further Research and New Challenges

This latest in the series of conferences that the Dallas Fed’s Globalization and Monetary Policy Institute has held with the SNB highlighted themes that will continue to be at the fore of policy discussions. There is abundant evidence that monetary policy actions in advanced economies have spillover effects on emerging and developing economies. This seems to be true of both conventional and unconventional policy actions. In recent years, the conventional wisdom, based on the classic trilemma of international finance that a flexible exchange rate regime can insulate a country from monetary policy shocks beyond its borders, has been challenged. Since the global financial crisis of 2007–09, the stance of monetary policy in all of the advanced economies has been uniformly accommodative. But, the potential for diverging monetary policies between some of the world’s most important central banks will likely create new challenges for the global monetary system.

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