Global Dimensions of Unconventional Monetary Policy: An Introduction to the 2013 Economic Policy Symposium

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Central banks around the world responded in creative ways to the financial crisis of 2008, leading to the adoption of unconventional monetary tools and policies. For example, some central banks began targeting record-low policy rates, making large-scale asset purchases and giving more specific forward guidance on the path of short-term rates. In many instances, these tools were relying on new and untested transmission channels of monetary policy.

Another aspect of unconventional policy actions concerns their broader, global dimension. For example, global monetary accommodation and large-scale asset purchases by a few central banks substantially increased the amount of global liquidity in the years following the crisis. This increase, along with financial market innovation and globalization, has affected the magnitude and dynamics of cross-border liquidity flows. At times, capital flows can be large and potentially destabilizing, posing risks to financial and economic stability. The strains in Europe have also illustrated that capital flows can create challenges for advanced economies.

To better understand these issues related to global aspects of unconventional monetary policy, the Federal Reserve Bank of Kansas City sponsored a symposium titled "Global Dimensions of

Unconventional Monetary Policy," Aug. 22-24, 2013, in Jackson Hole, Wyo. Participants included central bankers from around the world, leading academic economists and market participants.

During the proceedings, several key themes emerged. First, the zero lower bound on nominal interest rates presents a substantial headwind in returning some countries to full employment. Second, using unconventional tools offers alternatives for monetary policy to provide stimulus, but such tools come with risks. Third, the unconventional actions of many central banks have supported global economic growth, benefitting most countries in the process. Fourth, unwinding from the use of unconventional tools must be accompanied by clear and consistent communication from policymakers. And finally, while more coordinated monetary policies across central banks may appear to have some benefits, practical considerations and the need to remain focused on domestic economic conditions make such coordination unlikely. This introduction further expands on these themes and summarizes the main ideas presented at the 2013 Jackson Hole Economic Policy Symposium.

Encountering the Zero Lower Bound

To begin the proceedings, Robert E. Hall of Stanford University presented "The Routes Into and Out of the Zero Lower Bound." He described the low short-term interest rate environment that emerged in some advanced countries as a "collision" of three factors. First, he argued a sharp decline in real-estate prices led to a fall in aggregate demand. The decline was driven by the end of easy cash-out refinancing, as households could no longer finance spending with debt secured by their homes. Second, the zero-lower-bound constraint on nominal interest rates has been a larger and more persistent headwind than what was anticipated. Without the zero lower bound, Hall argued real interest rates would have been able to fall further and provide greater stimulus to demand. Third, inflation has remained low and stable in many advanced economies, reinforcing the zero lower bound.

Although inflation has remained low in some countries, it has not fallen as much as might have been suggested by some conventional

frameworks. For example, Hall highlighted the Phillips curve, which indicates that inflation depends on the amount of slack in economic conditions, which is often measured using labor market indicators such as the unemployment rate. Estimates suggest slack in many economies, such as the United States, had been quite substantial over the past five years. As a result, Phillips curve frameworks often indicate inflation should have been even lower than what was actually observed.

To reconcile low and stable inflation, along with high unemployment, Hall posited that an economy can be in equilibrium even when unemployment is elevated. In such circumstances, businesses perceive price cutting has larger costs than benefits, so they do not have sufficient incentives to lower prices. In formalizing his thinking, he constructed a model that can deliver outcomes that are consistent with stable inflation and high unemployment. For example, a drop in aggregate demand, due to household efforts to deleverage, along with a drop in aggregate supply, results in a high level of unemployment without significant pressure on businesses to adjust prices. A drop in aggregate supply occurs due to elevated risk premiums, which raise the discount rate businesses use to evaluate the current and expected benefits from hiring a new worker. High discount rates lower the present value of hiring a new worker, which Hall pointed to as a factor behind the slow rate of new job creation in some economies, such as the United States.

Regarding the role of monetary policy in speeding up the recovery in the United States, Hall suggested a further reduction of the interest rate the Federal Reserve pays on excess reserves may provide some benefits, though he had doubts about more aggressive measures like nominal GDP targeting. Otherwise, he viewed forces like household deleveraging and a return to more normal risk premiums as "self-correcting" and dependent on time.

In discussing Hall's paper, Hyun Song Shin of Princeton University agreed that high discount rates due to elevated risk premiums had weighed on employment. Turning to evidence from bank lending rates, Shin noted that rates on funds loaned to U.S. businesses of moderate risk have remained high, even after short-term rates reached near zero. He highlighted a similar pattern in the U.K. and

eurozone. In terms of lending volume, credit to the corporate business sector expanded after the crisis in the United States, though has remained stagnant in the noncorporate sector.

Given the noncorporate sector consists of bank lending to smaller businesses, whereas bond issuance has been the driver behind credit for corporate businesses, the lack of credit growth is of concern. Shin reviewed research that emphasizes the important role of younger businesses, which are often small, in new job creation. He also highlighted the drop in job creation arising from small businesses during the crisis and that it has yet to recover.

In addition, Shin's view is that the evidence suggests banks play a unique role, so credit derived from the bond market has a different effect on the broader economy than from the banking system. He added that as a result, central bank asset purchases that lower interest rate spreads on mortgage or corporate bonds over safe government securities "will not do much for unemployment" if bank lending rates remain elevated.

He also challenged Hall's view of the economy prior to the crisis, which Hall described as having suffered a large housing shock in what was otherwise a normal economy. Instead, Shin described an overleveraged banking sector that had become too large. He sees the crisis and subsequent headwinds for the broader economy as a "direct result of the excesses prior to the crisis." Going forward, he sees central banks as facing a more challenging trade-off than between high or low discount rates. Instead, he described the trade-off as balancing additional stimulus today with a higher probability of financial instability in the future.

Efficacy of Unconventional Monetary Policy Actions

The trade-offs discussed by Shin are only one aspect of unconventional monetary policy, as central banks are also challenged by the appropriate mix of unconventional tools to adopt. One aspect of this challenge was highlighted in a paper by Arvind Krishnamurthy of Northwestern University and Annette Vissing-Jorgensen of the University of California-

Berkeley. In reviewing the asset purchase programs of the Federal Reserve during and after the crisis, the authors highlighted a few channels through which Fed purchases affect asset prices. First, the authors referred to a capital constraints channel, through which asset purchases can alleviate depressed prices for some assets during moments of financial stress. This channel exists if only a certain set of investors are active buyers of some particular asset, such as mortgage-backed securities (MBS), but suddenly face a shortfall of capital. In this case, their ability to purchase assets with depressed prices may be limited, inhibiting their ability to engage in arbitrage. Second, Fed purchases of both agency-MBS and Treasury securities affect asset prices via a scarcity channel. Under this mechanism, investors have a focused interest in buying securities with particular characteristics, so Fed purchases can alter the available supply of some assets and affect their prices.

Regarding the Fed's agency-MBS purchases, Krishnamurthy and Vissing-Jorgensen see the strength of this policy as depending on the current and expected stock of MBS available to the private sector. Variations in the Fed's plans to purchase less or eventually sell the stock of agency-MBS can have an "immediate and persistent" effect on their prices, as well as affect prices of some closely related assets. As the capital constraints channel becomes less binding, reflecting that certain investors are more actively engaged in the MBS market and have resources to purchase assets, as well as engage in arbitrage, the effect of Fed agency-MBS purchases will be smaller. In this respect, the authors indicated that MBS purchases have diminishing benefits as market conditions normalize.

The authors argued that the effects of MBS purchases also operate through a scarcity channel. As the Fed concentrates its purchases on the current-coupon segment of the agency-MBS market, the private sector sells the securities to the Fed that are "cheapest-to-deliver" within a set of securities with well-defined characteristics. As the quantity of purchases rises, the Fed will be purchasing securities with more attractive features, such as slower prepayment speeds. To induce the private sector to sell the more attractive assets, prices must rise. Through this scarcity channel, ongoing Fed purchases of

current-coupon agency-MBS securities affect prices, though the authors argued spillovers to other assets via this channel are limited.

For Treasury purchases, Krishnamurthy and Vissing-Jorgensen see Fed purchases as effective in lowering Treasury yields, but having only a limited effect on other asset prices via spillover channels. Similarly, the authors found little evidence of a "broad channel through which purchases of long duration assets, both MBS and long-term Treasury bonds, reduce a duration risk premium (term premium) on all long-term fixed income assets." Instead, they found purchases operate primarily through narrow channels.

The authors also discussed the implication of their findings for the Fed's exit strategy. Since Fed purchases of Treasury securities primarily affect Treasury yields and not broader asset valuations, they view active sales of Treasury securities from the Fed's balance sheet as the appropriate first step toward reducing the size of the balance sheet. Next, higher-coupon MBS securities should be sold, which they anticipate will have only a modest effect on the mortgage market. The last step is then the cessation of current-coupon MBS securities. In executing such a strategy, they noted the elevated importance of effective communication strategies.

The discussant, Anil K. Kashyap of the University of Chicago, began his comments by emphasizing the challenges of isolating the effects of purchases on asset prices. For example, he presented data showing how equity prices and exchange rates move around the time of announcements about asset purchases, suggesting these asset prices are more closely linked to the future path of interest rates and overall stance of monetary policy. In some cases, asset prices move substantially around announcements, suggesting that isolating the effect of asset purchases from the overall stance of policy is a substantial challenge. He also noted that measuring asset price movements relative to market expectations rests on the assumption of a representative market participant. Though in practice, market participants often have a variety of beliefs concerning monetary policy.

Unconventional Monetary Policy and Emerging Markets—A Difficult Dilemma

In continuing the evaluation of unconventional monetary policy, the symposium next convened a panel consisting of individuals representing both emerging market and advanced economies. For the emerging market perspective, Bank of Mexico Governor Agustín Carstens discussed a range of issues related to unconventional monetary policy. First, he pointed out that higher growth and inflation rates have kept short-term rates in emerging markets away from the zero lower bound. As a result, central banks in emerging markets have relied primarily on traditional monetary instruments, which he noted have remained "operational and effective." He noted, however, that emerging markets cannot "decouple" from advanced economies, citing the close relationship between industrial output of the world and exports from emerging markets. To the extent unconventional monetary policies have supported economic activity, emerging markets have benefitted.

Despite beneficial aspects, Carstens also pointed to some "undesirable side effects" for emerging markets. One side effect he noted is related to strong capital inflows. In response, some have had to confront "mispricing in local asset markets" and contend with "increasing financial stability risks." He noted not only challenges associated with large inflows, but also the associated volatility and risks related to sudden capital outflows. Still, he said that it "would be unfair to blame unconventional monetary policy for all this volatility" and provided an example from the European Central Bank when unconventional actions help to stabilize markets.

More broadly, Carstens discussed the challenges of conducting monetary policy in a small open economy, where the exchange rate and commodity prices often play a large role in policy considerations. Upward trends in commodity prices have a tendency to raise inflation expectations, which he argued calls for a higher domestic interest rate. The "difficult dilemma," however, is that higher rates will attract still more capital inflows, as well as "more pressure on the exchange rate and the buildup of potential financial instability due to the potential larger reversals."

A key issue is that some emerging market central banks have "insufficient credibility." He argued greater credibility in containing inflationary pressures would result in less of a need to respond to higher commodity prices. As a result, "there is no good answer" that has lead policymakers toward macroprudential tools. For example, actions have been taken to limit capital inflows via capital controls, as well as manage the effect on the exchange rate by engaging in heavy interventions in foreign exchange markets. To lean against asset bubbles, some countries have also adjusted credit terms and standards, such as imposing debt-to-income limits and adjusting loan-to-value requirements on potential borrowers, and adjusted risk weights on some bank assets, as well as adopted time-varying loan-loss provisioning. His view is that these tools should be adopted to address particular distortions and be short-lived. In conclusion, he noted the "most pressing challenge" faced by emerging markets is to manage the withdrawal of some unconventional policies in advanced economies.

A Perspective on China

For another perspective from an emerging-market economy, David Daokui Li of Tsinghua University discussed the implications and use of unconventional monetary policy in China. In providing a broad overview of the Chinese economy, he highlighted a number of unique features relevant for monetary policy. First, China has very high rates of saving, investment and growth. Second, finance and lending is dominated by the banking sector. Third, relative to other countries, China has a very large money stock. Fourth, he said many of those involved in economic activity are motivated not only by economics, but also by political considerations. And finally, Chinese investors have a strong home bias, so are cautious in looking to deploy their capital abroad.

After discussing these features, Li turned to what he views as unconventional monetary policy in China. For example, since banks are the center of the financial system, monetary policy in China focuses on overall credit growth and uses its tools in response. In addition, because there is such a large money stock, liquidity in the banking system is carefully managed through adjustments to reserve requirements and

open market operations. Given the relatively low outstanding stock of Chinese government debt, he described how the issuance of central bank debt, which is purchased by the commercial banks, is an important tool in liquidity management. Commercial bank rates and interest rate spreads are also regulated and set at levels to manage competition in the banking system and preserve long-term profitability, though this approach is gradually being phased out. In addition, exchange rates and capital flows are managed in a way that generates a substantial trade surplus, though he noted that in recent years the surplus has gradually declined.

Li sees all these factors, along with worldwide monetary conditions, as setting up a number of challenges in the years ahead. For example, he expressed concern over the rapid expansion of credit in China. In particular, he noted the fiscal and financial position of local governments, some of which carry substantial debt burdens. He also sees future exchange rate flexibility and fewer capital controls as "necessary and important," along with a need to move some of the financial concentration in the banking system to capital markets. For example, he cited the creation of a market for well-regulated securitized assets as a step in this direction. The reduction of asset purchases by the Fed may also pose some risks to the Chinese economy, mostly through its broader effect on emerging markets. Wage pressures due to fewer available workers in nonurban areas may also generate inflationary pressures that, in his view, may sow the seeds of broader worldwide inflationary pressures in the future.

The Eurozone and Global Financial Conditions

For a perspective from the advanced economies, Frank R. Smets of the European Central Bank (ECB) offered an overview of the challenges monetary policymakers face in the eurozone. Drawing from a broad literature, his discussion highlighted the high degree of international comovement of longer-term rates. He noted the large role global factors play in explaining common movements in global rates of inflation and growth, as well as in term premiums, which underlie the highly correlated bond yield movements across countries.

In light of these observations on international bond yields, one consideration for European monetary policymakers is how to respond to the rise in longer-term rates that occurred over the course of mid-2013. Within this context, Smets asked two questions. The first asked whether the rise reflected an inappropriate tightening of financial conditions in Europe. If so, the second question asked whether Europe could "decouple," if necessary, from upward movements in international rates. Regarding the first question, he cited literature that suggested changes in longer-term rates driven by changes in expected future short-term rates has a larger effect on economic activity than changes in the term premium. To the extent that the rise in rates in mid-2013 reflected higher term premium, Smets' comments leaned toward only a modest concern that it reflected an inappropriate tightening of financial conditions. With respect to the eurozone's ability to decouple, he noted challenges in a country's ability to counteract a change in the term premium driven by global economic conditions. The ability to provide credible forward guidance, however, may provide some offset to a rising term premium and he noted such efforts by the ECB.

Of perhaps more pressing concern, particularly for Europe, were the implications of the sovereign debt crisis for monetary policy. He noted rising rates in some stressed countries passed through to broader financial conditions within the eurozone. In response, he noted a number of unconventional actions taken by the ECB to counteract the rise in sovereign spreads. First, policy rates were lowered to "very low levels" that had the effect of narrowing spreads, particularly in stressed economies. Second, the ECB offered liquidity support to the banking system, which he viewed as having brought down "systemic stress" and also aided in lowering sovereign spreads. And finally, the ECB established programs allowing it to intervene directly in government bond markets, under strict conditionality, in efforts to mitigate concerns over the possible breakup of the eurozone. He noted the program has also successfully lowered sovereign debt spreads.

Overall, Smets' comments highlighted how monetary policy of even very large economic areas are subject to global forces and must respond to both domestic and international developments.

Such considerations were further discussed over lunch by Christine Lagarde, Managing Director of the International Monetary Fund.

A Global Perspective on Unconventional Monetary Policy

For the luncheon address, Lagarde discussed how unconventional monetary policy had affected the global economy, as well as considerations regarding the removal of such stimulus. In the early phases of the crisis, she noted how various balance sheet actions of major central banks helped calm financial markets, contributing to both financial and economic stability. She viewed that on balance, "*all* countries benefited" [italics original].

Going forward, Lagarde noted that striking the balance between financial stability and unhealthy risk taking may be a challenge, particularly as some countries begin to curtail their unconventional policies. She viewed indications that unconventional actions would be curtailed in some countries, such as the United States, as having an effect on capital flows from emerging markets. She viewed macroprudential and capital flow management frameworks as aiding these countries through such adjustments. As a result, the net benefits for countries not undertaking unconventional actions are still positive, "at least for now." For the countries pursuing unconventional actions, she saw unconventional monetary policy as providing a period of time when policymakers can pursue fiscal, financial and structural reforms.

Global Liquidity and Spillover Channels

The second day of the symposium opened with a paper by Jean-Pierre Landau of Sciences Po on global liquidity. Landau defined liquidity as the "ease of financing," whereas global liquidity is the funding that crosses national borders. In addition, he distinguished *private* from *public* liquidity. Private liquidity reflects the cross-border operations of financial institutions and depends on the willingness of these institutions to extend credit. He cited foreign direct investment (FDI), portfolio flows and bank loans denominated in foreign currency as examples. Alternatively, public liquidity is provided by the monetary authority and takes the form of foreign exchange reserves, swap lines, and liquidity provided by nongovernmental organizations.

After distinguishing the different types of flows, Landau argued that the recent crisis changed the nature of international capital flows by altering spillover channels, resulting in flows that are now more sensitive to economic conditions. The most germane factor to this change, he argued, is the adoption of unconventional monetary policies in some of the largest economies. In particular, he sees zero-interest-rate policies as having a significant effect on capital flows—that is, on global liquidity. When short-term rates are near zero, he argued risk premiums drive cross-border banking flows, generating volatility and dynamics disconnected from economic fundamentals. The result can be disruptive cycles in liquidity and credit growth.

Looking ahead, the confluence of these factors is likely to raise the demand for safe assets, which raises another set of challenges for the international monetary and financial system. For example, Landau noted that if public debt expands to satisfy greater demand, the quality of the asset itself is undermined. He sees this as a modern incarnation of the "Triffin dilemma"—that is, that a country whose currency serves as the reserve currency is likely to maintain a current account deficit. Persistent current account deficits, however, have the potential to undermine the currency's ability to serve as the global reserve currency.

In terms of an appropriate policy response, Landau argued that maintaining control of local financial conditions using domestic monetary policy alone poses considerable challenges and may not insulate an economy from volatile capital flows. In such circumstances, how closely should monetary policy be coordinated across countries? Landau's answer is that such coordination is likely to be limited. He sees intractable coordination issues and challenges to internalizing, let alone predicting, the feedback loops that coordinated monetary policy may have on the financial system. Instead, he sees the use of tailored and proactive macroprudential tools as a potential approach to attenuating long-term credit cycles. In this arena, he does see scope and potential gains from coordination.

The Footprints of Global Liquidity

In discussing Landau's paper, Claudio Borio of the Bank for International Settlements noted the challenges in measuring the concept

of liquidity. To the extent liquidity is "unobservable," Borio noted that we should instead look for indirect "footprints." For example, changes in measures of risk perceptions or the terms and conditions under which funding is granted may reflect important aspects of liquidity. Given the array of potential footprints, Borio emphasized research that notes the joint behavior of credit and property prices is often a useful indicator—that is, a footprint—of potential imbalances that may pose systemic risks to the broader economy and financial system.

In managing and mitigating the potential for "liquidity-fueled financial booms and busts," Borio said he sees a role for strengthening safeguards domestically, as well as enhancing international monetary policy coordination. Strengthened macroprudential tools, fiscal policies aimed at repairing private-sector balance sheets and domestic monetary policies that lean against financial balances, even if inflation is low and stable, are measures countries can pursue domestically to foster a more stable financial and economic system. In contrast to Landau, Borio does see a role for international monetary policy coordination and concluded the discussion with the view that in terms of policy, "keeping one's own house in order is necessary but not sufficient to address our common challenges."

Revisiting the Trilemma of International Finance

The second day of the symposium continued with a paper by Hélène Rey of the London Business School that reconsidered what international macroeconomists view as the "trilemma." The trilemma posits that policymakers must choose between two of the following three goals: the free flow of capital, independent monetary policy and flexible exchange rates. In contrast, Rey described a "dilemma" that views an independent monetary policy as possible only if steps are taken to carefully manage a country's capital account. Rey's dilemma arises in a world with freely flowing capital because of a global financial cycle, represented by comovements of gross capital flows, leverage, credit growth and asset prices, that impinges on the independence of a domestic monetary authority.

Rey substantiates the existence of a global financial cycle by showing that most types of capital inflows (i.e., FDI, equity, debt, credit) into different geographical regions are positively correlated with one another and across regions. A similar pattern can be seen for different types of capital outflows. In addition, the commonality is particularly strong for credit and portfolio debt inflows, but is absent for *net* capital flows. She argued the latter finding highlights the importance of using gross flows, rather than net flows, in gauging a global financial cycle. Rey also looked to the Chicago Board Options Exchange Volatility Index (the VIX), a measure of risk aversion and expected equity market volatility, as an index capturing the global financial cycle for both flows and asset prices. She noted, for example, a low value of the VIX is associated with a buildup of the global financial cycle: more capital inflows and outflows, more credit creation and private liquidity growth, more leverage and higher asset prices.

To capture the linkages across monetary policy, the VIX and capital flows, she estimated a model that highlights how monetary conditions in large financial centers, such as the United States, play a central role in shaping the global financial cycle. For instance, her model shows that an increase in the U.S. federal funds rate leads to an increase in risk aversion and market volatility (the VIX), a fall in bank leverage and a fall in global credit inflows.

In managing the global financial cycle, Rey considered options such as imposing targeted capital controls, enhanced monetary policy coordination, macroprudential policies and imposing stricter limits on leverage for financial intermediaries. She also suggested the welfare gains from capital flows are difficult to find, or at least hard to measure, so steps to restrict such flows may be appropriate. Accounting for practical feasibility, she argued that macroprudential policies and stricter leverage ratios are likely to be most effective in helping countries navigate the global financial cycle and that in some instances, the use of capital controls also "should not be discarded."

In discussing Rey's paper, Terrence J. Checki of the Federal Reserve Bank of New York agreed with her view that macroprudential policies and higher leverage ratios would assist in securing monetary policy independence for many countries. Checki, however, was skeptical that

central banks would be able to effectively "internalize" the financial effect of their policies on other countries. He suggested that prudential oversight and regulation should be the focus of efforts to manage the financial cycle, rather than monetary policy. Instead, monetary policy should remain focused on demand management, partly because of its limited or poorly understood ability to control financial cycles. Still, he noted that macroprudential tools do not provide a "silver bullet" and that experience in emerging markets suggests outcomes are better when monetary policy and macroprudential tools are moving in the same direction.

In looking ahead, Checki anticipated capital flows and financial deepening across borders to continue. Though, he also viewed such deepening as providing benefits, such as faster growth, but at the cost of greater risks. Rapid deepening can lead to financial stability challenges, but he noted that policymakers in emerging-market economies often understand these issues.

The Overview Panel: The United Kingdom, Japan and Brazil

To complete the symposium, policymakers from the United Kingdom, Japan and Brazil expressed their views of unconventional monetary policy. Opening the panel was Deputy Governor Charles Bean from the Bank of England, who began by emphasizing unconventional actions were effective, though he said he understood why some would question whether they were the appropriate tool to use following the crisis. For example, policies aimed at encouraging borrowing and debt may slow the unwinding of excesses that occurred prior to the crisis. On the other hand, viable firms may fail and employable workers may remain unemployed if central banks do not pursue policies to support aggregate demand. In the end, he described an approach that can achieve both outcomes by focusing on structural reforms within the banking sector and accommodative monetary policy. Importantly, he noted monetary policy is best suited to "buy time," while structural reforms are put in place.

Governor Haruhiko Kuroda of the Bank of Japan followed Bean and described unconventional monetary policy from the perspective of the country that has the most experience with such tools. He

reviewed recent actions the Bank of Japan had taken to stimulate economic activity and raise inflation. Qualitative and quantitative easing or QQE, as the framework is called, affirms the commitment to increase inflation to a 2 percent target and double the monetary base within two years, as well as increase the average maturity of Japanese government bonds held by the Bank of Japan. Other aspects of the framework include purchases of exchange-traded funds and Japanese real-estate investment trusts.

In assessing QQE, Kuroda discussed how equity valuations had increased, consumer sentiment had improved and signs had emerged that business investment was likely to rise. He noted QQE had been successful not only in lowering the real rate of interest, but also in raising the natural rate of interest by making economic conditions more favorable for new investments. Kuroda noted the broader effect of the relationship between the monetary base and cross-border capital flows is complicated and depends on a range of factors. For example, easing actions that raise expectations of future growth may result in an inflow of capital.

From Brazil, Deputy Governor Luiz A. Pereira da Silva from the Central Bank of Brazil discussed issues related to unconventional policy from an emerging market perspective. He viewed the actions taken in many advanced economies as helping avoid a worse economic downturn and thereby, broadly supporting global economic activity. Spillover effects, however, were substantial and had a significant effect on some emerging-market economies. Credit multipliers in advanced economies were low, or "broken," following the crisis and as a result, a large amount of liquidity flowed from advanced to emerging-market economies. Some countries, such as Brazil, took precautionary macroprudential and regulatory actions in preparation for potentially large inflows. As a result, Brazil did not experience substantial outflows in response to signals that some unconventional actions in advanced economies may be unwound.

Looking ahead, he noted smoothing the financial cycle in emerging-market economies that originates with monetary policy actions in advanced economies will be a challenge. Also, he noted the need for policymakers and economists to think hard about frameworks

that see macroprudential tools and monetary policy as complements in bringing about financial stability.