Financial Crises and the Global Financial System:

Summary of the 2013 BOJ-IMES Conference Organized by the Institute for Monetary and Economic Studies of the Bank of Japan

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I. Introduction

The Institute for Monetary and Economic Studies (IMES) of the Bank of Japan (BOJ) held the 2013 BOJ-IMES Conference, entitled "Financial Crises and the Global Financial System," on May 29–30, 2013, at the BOJ Head Office in Tokyo.[1] The conference was attended by some 50 distinguished participants from academia, international organizations, and central banks.[2] The participants discussed issues on the global financial system highlighted by the recent financial crisis.

The conference began with opening remarks delivered by the Governor of the BOJ, **Haruhiko Kuroda**. The honorary adviser of the IMES, **Maurice Obstfeld** (University of California at Berkeley), gave the keynote speech; **Guillermo A. Calvo** (Columbia University) presented the Mayekawa Lecture; **Stanley Fischer** (Bank of Israel) gave a speech at the conference dinner; and five papers were presented. The conference concluded with a policy panel discussion.

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1. The conference organizers express their sincere gratitude to the IMES's honorary advisers Marvin Goodfriend and Maurice Obstfeld, the IMES's chief councillor Kazuo Ueda, and all other conference participants for thought-provoking presentations and discussions. The views expressed throughout this summary are those of the speakers and do not necessarily reflect those of their respective institutions.
2. See Appendix 1 for the program. See Appendix 2 for the list of participants; their affiliation is as of May 29–30, 2013.

II. Opening Remarks[3]

In his opening remarks, **Kuroda** mentioned that the recent global financial crisis differed from the previous ones in two respects. First, it had started in advanced economies and then had spread from there to many emerging market economies. Second, it had been triggered and then amplified by the dysfunction in financial systems. He then mentioned that the global financial community had to deal with two issues: capital controls, and financial regulation and supervision in its efforts to rebuild the global financial system that had been severely affected by the recent crisis.

Regarding capital controls, he indicated that one of the causes of the international transmission of the recent global financial crisis was deemed to be financial globalization and the accompanying global upsurge in gross capital flows, which led to increasing attention over prudential capital controls. As for financial regulation and supervision, he described that in the wake of the recent crisis, there was renewed global recognition of the importance of financial stability and international meetings, such as those of the G20, had been discussing the enhancement and international harmonization of financial regulation and supervision. He then pointed out that "the trilemma of finance" offered a useful viewpoint in considering these issues.

III. Keynote Speech: On Keeping Your Powder Dry: Fiscal Foundations of Financial and Price Stability[4]

Obstfeld argued that a clearly defined rule for fiscal exposure was essential to the credibility of governmental promises to support the financial system as well as the real economy. Without such a rule, financial instability would worsen and might induce price instability or sovereign default, which would further impair the functioning of financial markets at great cost to the real economy. He also stated that Japan's current economic policy aiming to escape from decades of slow growth and deflation illustrated how dangerous it could be to tolerate large buildups of public debt.

Behind his assertions lay four analyses presented in his speech. First, he reviewed the recent developments in shadow banking systems and the remarkable increase in costs to economies of the recent banking crises. Second, he argued that to secure financial stability, policymakers had to design *ex ante* tools against financial crises that took account of the likely *ex post* policy responses to them. Specifically, *ex ante* liquidity support and *ex post* measures for insolvent financial institutions should be mutually consistent to limit the collective moral hazard of participants in financial markets. Third, he warned that a potential cost of recent activist central banks' liquidity support was a blurring of the boundary between monetary policy and fiscal policy, with potential political consequences for central banks' independence to pursue price stability, because this blurring could lead to a situation in which his second assertion might not hold. To understand this, suppose that fiscal resolution practices could not be structured to limit taxpayers' exposure and moral hazard. Then, if a crisis inflicted

3. For details, see Kuroda (2013).
4. For details, see Obstfeld (2013).

significant collateral damage on the economy, which led to a bigger fiscal deficit, governmental credibility as a guarantor of the financial system could fall into doubt. In this situation, a central bank might again be brought into play to resolve the resulting budgetary inconsistency through inflation. Finally, regarding the situation in Japan, he noted that Japan's authorities proposed to promote positive inflation expectations. However, doing so at current public debt levels—while avoiding financial instability and government financing problems as nominal interest rates inevitably rose—would require a delicate balancing act. Despite the evident risks, there was no alternative to the radical policy shift; further postponement would only lower the possibility of success.

IV. The Mayekawa Lecture: Puzzling Over the Anatomy of Crises: Liquidity and the Veil of Finance[5]

Calvo began his lecture with a discussion of the sources of asset liquidity by citing two perfectly liquid assets: fiat money and bank deposits. He mentioned that fiat money was perfectly liquid, not only because it was legal tender but also because its value as a unit of account was not modified in the short run under sticky prices. He referred to this foundation of liquidity for fiat money as the Price Theory of Money (PTM), and argued that according to this theory the euro would not disappear as long as Europeans continued to quote the dominant share of their prices in the euro. As for bank deposits, he indicated that their liquidity stemmed from public protection of liquidity such as deposit insurance and the lender of last resort (LLR) function provided by central banks.

Next, he claimed that imperfectly liquid assets—which neither served as a unit of account nor were protected by the LLR—played a central role in an unexpected large contraction of credit flows, which he called "Sudden Stop." He cited mortgage-backed securities (MBSs) as an example of imperfectly liquid assets and argued that the financial sector always had an incentive to create such imperfectly liquid assets, since it could increase its leverage through, for example, repos by using imperfectly liquid assets as collateral. He stressed, however, that imperfectly liquid assets were vulnerable to runs, such as bank deposits without deposit insurance, since runs on imperfectly liquid assets deprived these assets of the liquidity premium and caused a fall in their price, that is, the Sudden Stop.

He argued that several puzzling facts regarding financial crises could be understood in terms of the liquidity crunch involving imperfectly liquid assets caused by the Sudden Stop. He first pointed out that some assets including MBSs raised their liquidity from the ground up by gradually increasing their familiarity. This penetration period for obtaining such liquidity could induce a credit boom and helped explain two puzzling facts: a credit boom preceding a bust and an increase in capital inflows during the run-up to a crisis. As another puzzling fact regarding financial crises, he pointed to the fact that in European countries involved in the euro crisis, both credit inflows and outflows had increased prior to the crisis and declined afterward. He interpreted

5. For details, see Calvo (2013).

this fact to indicate that financial instruments in these countries had obtained liquidity through adoption of the euro, thus producing an increase in their trading volume. In the aftermath of the crisis, however, their liquidity had disappeared because the crisis had generated concern about their perfect substitutability with financial instruments in non-crisis countries, leading to a drop in their trading volume.

Finally, he strongly criticized conventional monetary theories for overlooking the critical role of liquidity. He indicated that both Keynesians and monetarists had not seriously taken account of frictions in credit markets. He also criticized the canonical New Keynesian models for largely abstracting from key factors of the recent crises such as liquidity and the Sudden Stop. He closed his lecture by stressing that more research on liquidity was urgently needed to prevent another financial crisis with characteristics similar to the previous ones.

From the floor, **Marvin Goodfriend** (Carnegie Mellon University) asked why people continued to use fiat money even under high inflation. **Calvo** replied that people continued to set many prices based on their own currency even in a high-inflation period, because it was difficult to change from setting prices in one currency into another one due to the necessity of coordination among price setters. He argued that the resilience of fiat money to high inflation was understood from the perspective of the PTM. **Frank Smets** (European Central Bank) asked whether the Chicago Plan, which had been proposed after the Great Depression to separate the credit creation function from the liquidity creation function of financial institutions, was a useful measure to preserve financial stability. **Calvo** indicated that the Chicago Plan might not be effective in modern societies, since the current financial sector would eventually create credit instruments which could be used as some form of liquidity, like MBSs, even in a case where the two functions were separated. **William Garside** (Waseda University) asked how much freedom national authorities had in terms of controlling liquidity when capital moved actively across countries. **Calvo** pointed out that an increase in capital inflows to a particular country made investment in the country more liquid and encouraged this investment more actively. He then acknowledged that it was very difficult for national authorities to interfere with international capital outflows. **Kazuo Ueda** (University of Tokyo) asked whether the BOJ should have bought real estate in the 1990s in response to the sharp decline in Japanese real estate prices and liquidity. **Calvo** replied that the purchase of real estate might have been effective in Japan, but it needed careful preparation because it was considered as virtually a kind of fiscal policy.

V. Guest Speech at the Conference Dinner

At the conference dinner, **Fischer** gave a speech on "What Will Central Banks Do Differently as a Result of the Crisis?" He focused on the operation of central banks at the zero lower bound and macroprudential policy after the recent financial crisis.

First, he discussed three topics related to central banks' operations at the zero lower bound and stressed that flexible inflation targeting was effective at the zero lower bound. He first argued that central banks in advanced economies demonstrated that they could do many things through numerous variations of quantitative easing at the zero

lower bound of the policy interest rate. Among the variations were that the central banks could play a role as market makers of last resort as well as LLRs in markets for troubled assets. He next discussed the use of monetary policy to affect exchange rates. He argued that while the Federal Reserve was not using monetary policy to affect exchange rates, some emerging market economies seemed to do so. The unlimited intervention by the Swiss National Bank was an innovation in monetary policy, going against the conventional claim that "you cannot fight the market." This statement is true when a central bank is trying to fight a depreciation of its currency and has to sell foreign exchange to intervene, but is not true when the central bank has to fight an appreciation of its currency and can undertake sterilized intervention by purchasing foreign exchange. He finally mentioned that forward guidance was not a truly separate policy instrument but a communication tool with financial markets, because central banks would be expected to deviate from the interest rate path indicated by forward guidance in the future if economic circumstances changed from what had earlier been expected. He concluded that flexible inflation targeting was still valid as a framework for monetary policy even after the recent financial crisis.

Second, he stated that some of the measures defined as macroprudential policy—such as controls on loan-to-value (LTV) ratios on mortgages, or changes in required capital ratios of banks against mortgages, imposed with the aim of cooling the housing market—were not necessarily a new policy of central banks. In the 1960s and 1970s, central banks had intervened in a wide and detailed range of financial sector lending, although they had not then called these interventions "macroprudential policy." There was a concern that central banks which undertook macroprudential policy would not be able to sustain the independence of their monetary policy, since some of the issues covered under the heading of macroprudential policy were far more politically sensitive than standard monetary policies. He argued, however, that central banks could sustain the independence of monetary policy even if they undertook macroprudential policies, by separating the governance of monetary and financial stability policies. A leading example was the new policy framework at the Bank of England, where the Monetary Policy Committee remained as it had been, while the Financial Policy Committee with a different membership was responsible for financial stability.

VI. Paper Presentation Sessions

A. Prudential Capital Controls: Is There a Case for International Coordination?[6]

Prudential capital controls were viewed recently as a policy instrument dealing with booms and busts in capital inflows by policymakers in emerging market economies as well as international organizations including the International Monetary Fund (IMF). Against this background, **Olivier Jeanne** (Johns Hopkins University) analyzed the welfare implications of domestic macroprudential policies and prudential capital controls and the possibility of international coordination of prudential capital controls. Based on results of his theoretical analysis, he first mentioned that domestic macro-

6. For details, see Jeanne (2013).

prudential policy (i.e., a tax on domestic borrowing) was the first-best instrument to deal with booms and busts in domestic credit flows accompanied by capital flows, and prudential capital controls (i.e., a tax on external borrowing) might have a role to play as the second-best instrument. Domestic macroprudential policy was the first-best instrument because in the presence of a financial friction that induced an uninternalized social cost of borrowing, it directly reduced domestic borrowing so that the private return on borrowing matched the social return. He then indicated that both domestic macroprudential policy and prudential capital controls had international spillovers, and asked whether the uncoordinated use of prudential capital controls might lead to a "capital war" that depressed global interest rates. His analysis showed that the international coordination of prudential capital controls was not warranted in general, but it was justified if the world was not in a situation of full employment and global demand externalities were involved.

The discussant, **Eric B. Santor** (Bank of Canada), commented that the paper evaluated domestic macroprudential policies and prudential capital controls in a context of global deficient demand and provided very useful insights in the simple model. He mentioned, however, that these measures needed to consider more explicitly the current lack of global demand. Moreover, in the case of a country that constantly received excessive capital inflows, capital controls would be not countercyclical but secular. This was in contrast to the results of the paper that were premised on the assumption that prudential capital controls would be used primarily for countercyclical purposes. In fact, capital controls in emerging market economies were not just countercyclical, but often tended to be persistent. This reflected the fact that capital inflows to emerging market economies were primarily secular, not cyclical, in nature.

From the floor, **Goodfriend** stated that if the U.S. financial system had been well regulated during the pre-crisis period, it should have been able to handle the enormous capital inflows to the United States without blowing itself up. The first priority might be to make the financial system robust rather than to try to protect a country from capital inflows with capital controls. **Obstfeld** commented on capital outflow controls, citing the case of Germany and Ireland. German banks lent to Irish banks and losses were recorded. However, due to very peculiar political circumstances, the losses were actually put on the Irish taxpayers rather than the German ones. But if it had been possible to anticipate that the losses would not be borne by the Irish, there would have been a case for the German government to restrict the outflows, which would have been desirable. **José Viñals** (IMF) commented that it was assumed that capital controls were effective in much of the academic research of capital flows. However, the effectiveness of capital controls might get diluted over the long term, and even in the short term the empirical evidence was not conclusive. For example, in many cases, capital controls had no impact on overall capital flows but altered the composition of flows. He also emphasized the need for an efficient financial system that was also resilient enough to intermediate capital inflows effectively in the case of structural and permanent capital inflows. **Koichi Hamada** (Yale University) argued that the paper might benefit from research on corporate income tax competition.

B. Rounding the Corners of the Policy Trilemma[7]

The trilemma of international finance shows that no economy can simultaneously achieve free capital mobility, a fixed exchange rate, and independent monetary policy. Regarding this trilemma, **Jay C. Shambaugh** (George Washington University) empirically addressed the question as to whether the independence of monetary policy could be restored to some extent under capital mobility by keeping the exchange rate fixed or within a certain range (i.e., a pegged or soft-pegged exchange rate). When a country (the "home" country) pegged its currency to that of another country (the "base" country), the interest rate of the home country would change as much as that of the base country (uncovered interest parity). He tested this relationship using the data on pegged and soft-pegged currencies, and across different degrees of the openness of capital markets. The results of his empirical analysis showed that under a pegged exchange rate with open financial markets the interest rate of the home country largely followed that of the base country, as the trilemma of international finance suggested. The result also held even with partially closed capital markets, suggesting partial capital controls might not isolate a country from international capital markets well. He also pointed out that this result held to a somewhat lesser extent under a soft-pegged exchange rate, where the country's interest rate did not follow the base country's quite as closely.

The discussant, **Keen Meng Choy** (Monetary Authority of Singapore), praised the contribution of the paper in that it compiled a comprehensive database regarding countries' degree of capital mobility and exchange rate regime. However, he indicated that there might be some errors in the measurement of capital controls, especially in emerging market economies. He proposed that other indicators of the openness of capital markets—such as the depth and breadth of financial markets to deal with capital inflows—be brought into the analysis, since the independence of monetary policy in emerging market economies might stem from actual capital immobility due to the underdevelopment of financial markets. He also proposed to check the robustness of the results using a vector autoregression model.

From the floor, **Obstfeld** mentioned that the depth and breadth of financial markets might matter in testing the independence of soft-peg countries' monetary policy, since the intervention in emerging market economies had a larger impact than in advanced economies. As for capital controls, **Linda S. Goldberg** (Federal Reserve Bank of New York) argued that some measure contingent on exogenous shocks to capital flows was a good proxy for capital mobility. **James B. Bullard** (Federal Reserve Bank of St. Louis) indicated that Shambaugh's results might capture the case of some countries which seemed to violate the trilemma due to the switches between different regimes of exchange rates and capital controls, as the exceptional independence of monetary policy under the soft-pegged exchange rate. **Jan Marc Berk** (De Nederlandsche Bank) proposed the use of longer-term interest rates to examine the ability of central banks to not only stabilize inflation but also control broad financial conditions. He also asked what kind of other measures were possible to increase the monetary policy

7. For details, see Klein and Shambaugh (2013).

independence if co-movements in financial conditions over the past decades indicated a decline in the ability of central banks to affect financial conditions in each country.

C. Size, Complexity, and Liquidity Management: Evidence from Foreign Banks in the United States[8]

Goldberg investigated how the organizational complexity affected the behavior of global banking organizations in the normal course of business as well as in circumstances of financial crises. She pointed out that the debate on the growth in the size and complexity of these organizations generally focused on regulatory issues surrounding the resolution of organizations that fell into insolvency to maintain financial stability. While the size of banking organizations was easily measured, there was no consensus on the measurement of organizational complexity. To analyze the impact of organizational complexity on the behavior of U.S. branches of foreign banks, especially liquidity management, she divided foreign banks in her sample into "complex" and "non-complex" banks based on the percentage of subsidiaries in which parent firms held a controlling interest in relation to the number of banks in the organization. She analyzed the branches' borrowing and lending activity to their parent organizations and found that U.S. branches of complex foreign banks adjusted their borrowing and lending within their global banking organization more actively than those belonging to non-complex organizations. She concluded that more complex organizations made greater use of their bank branches for the purpose of liquidity management. Furthermore, active liquidity management was more prevalent in larger branches. The evidence suggested that branches of complex organizations helped both to fund their organizations and insure them against liquidity risks elsewhere in the organization. On the other hand, this relationship between foreign branches and their parent organizations revealed one mechanism by which the liquidity shock was transmitted internationally. Given the evidence, it would be useful to examine what type of organizations chose to be complex. Surprisingly, her measure of complexity revealed a low correlation with the size of the global financial institution, suggesting that organizational complexity required a more nuanced understanding than was often assumed when size and complexity were used as interchangeable concepts.

The discussant, **Esa Jokivuolle** (Bank of Finland), indicated that a consensus had emerged that the excessive growth of global financial institutions was one of the principal causes of the recent global financial crisis and that cheap funding conditions under the expectation that such institutions were too big to fail were among the most important drivers of the excessive growth. This recognition emphasized the need for credible reform of the resolution process for systemically important financial institutions. However, such reforms were stifled by the complexity of these institutions. One suggestion to alleviate this problem was the restriction of intra-group financial linkages (e.g., between deposit-taking and trading activities). He pointed out that such regulation would, however, come with costs and that Goldberg's study focused attention on one important cost by investigating whether the complexity of the banking organizations might reflect some benefit in intra-group liquidity management. Furthermore,

8. For details, see Cetorelli and Goldberg (2013).

he wondered if the weak relationship between the size and complexity of financial institutions suggested that rather than being too big to fail, they might be too interconnected to fail; financial institutions might be driven toward greater complexity as market expectations of support for such systemically important institutions reduced their funding costs.

From the floor, **Anne Le Lorier** (Banque de France) argued that fragmentation of large financial institutions in the aftermath of the crisis had been prevented largely because of the fear that it would result in a sharp contraction in liquidity. She emphasized that a movement toward fragmentation of the banking sector should therefore not proceed without serious thought. **Obstfeld** raised the possibility that at first additional complexity might provide large benefits to a financial organization, but that such benefits might be overwhelmed by costs once the organization grew too complex. **Santor** mentioned that intra-group liquidity management might be affected by the amount of control a parent firm exercised over other firms in the group and that the extent of control over firms in the group would be an interesting extension of the study.

D. "Financial Dominance"[9]

Markus K. Brunnermeier (Princeton University) argued that monetary policy could undo a redistribution of wealth due to endogenous risk stemming from balance-sheet impairment. To show the importance of such a monetary policy channel, he first described how an impaired balance sheet of financial intermediaries amplified a negative shock to the economy. Financial intermediaries with impaired balance sheets were inclined to sell their assets at fire-sale prices to reduce their risk exposure, inducing a fall in asset prices and causing more deterioration and shrinkage in their balance sheets. In addition, as financial intermediaries shrank their balance sheets, they also created less inside money, leading to an overall reduction in money supply. This increased the real values of their liabilities, that is, ensuing deflationary pressure. These two vicious spirals, the liquidity and deflationary spirals, deterred financial intermediaries from channeling funds to the most productive parts of the economy and, as a result, inhibited economic growth. He then argued that monetary policy could mitigate the adverse effects by redistributing wealth to financial intermediaries whose balance sheets were impaired. *Ex ante,* a monetary policy rule that redistributed wealth to a leveraged sector which suffered most from an adverse shock could be seen as a insurance arrangement. As with any type of insurance, this policy suffered from a moral hazard problem. Indeed, financial institutions might strategically decide to be undercapitalized to make a wealth redistribution in their favor more likely or to rule out financial repression at their expense. "Financial dominance" complemented the monetary and fiscal dominance regimes outlined by proponents of the fiscal theory of the price level.

The discussant, **Jonathan L. Willis** (Federal Reserve Bank of Kansas City), first indicated that it was traditionally argued that monetary policy should not explicitly play a role in the redistribution of wealth, and argued that what role monetary policy should play in the redistribution was an open question. He next pointed out the fact that the

9. For details, see Brunnermeier and Sannikov (2013).

financial crisis in the United States had been observed in only a few sectors, but almost all sectors had suffered from negative effects of the financial crisis particularly because firms had responded to it by cutting employment. He showed that personal consumption in the United States had been reasonably predicted by changes in employment, and emphasized the importance of considering the transmission of financial crises through labor markets.

From the floor, **Obstfeld** commented that financial dominance meant that macroeconomic policies were dominated by the private sector and therefore financial dominance would be politically less acceptable, but could be resolved by certain measures including involuntary capital injection. **Fischer** argued that a countercyclical capital requirement could also resolve financial dominance. **Goodfriend** asked whether interest rate policy could both stabilize inflation and redistribute wealth at the same time. **Shambaugh** indicated that if banks were too small, they would not be bailed out because their collapse would not threaten the economy and, on the other hand, if banks were too big, they would be too big to save. He therefore argued that in both cases banks would not put themselves in the position of financial dominance. **Ueda** asked about the pros and cons of letting central banks instead of fiscal authorities conduct redistributive policies. **Brunnermeier** acknowledged that fiscal policy including wealth taxes achieved the same effect and argued that monetary policy was implemented more promptly than fiscal policy.

E. The International Finance Multiplier in Business Cycle Fluctuations[10]

Takushi Kurozumi (BOJ) reported the empirical analysis that addressed the question of what effect financial shocks originating in the euro area or the United States had on business cycle fluctuations in these economies, particularly during the "Great Recession" of 2007–09. He introduced a two-country model augmented with the international finance multiplier mechanism through which a financial shock originating in some country was transmitted to the other country and affected both countries' business cycle fluctuations in the presence of investors who searched for the same expected return on capital across the two countries. Based on the results obtained by estimating the model with 23 quarterly time series from the euro area and the United States, he indicated that through the international finance multiplier mechanism, financial shocks originating in the United States were transmitted to the euro area and had an impact on both the euro area and U.S. business cycle fluctuations during the past two decades. He also pointed out that adverse U.S. financial shocks and an adverse euro area neutral technology shock accounted for more than half of the fall in output growth in both the euro area and the United States during the Great Recession of 2007–09. In this context, he mentioned that the estimates of neutral technological change in the euro area were highly correlated with data series on the net tightening in credit standards by euro area banks in the Euro Area Bank Lending Survey. Therefore, the estimated euro area neutral technology shock was likely to represent a fundamental disturbance to the functioning of the euro area banking sector.

10. For details, see Hirakata and Kurozumi (2013).

The discussant, **Paul R. Wood** (Board of Governors of the Federal Reserve System), indicated that the finding about the euro area neutral technology shock—which mattered a great deal for the fall in euro area and U.S. output growth during the Great Recession—was considered to be derived from two estimation results. First, the estimated euro area neutral technology shock exhibited very high persistence. Second, the estimated degree of the spillover from the euro area in the process of U.S. neutral technological change was relatively large. Moreover, in terms of the result of the high correlation between the series of the estimated euro area neutral technological change and those of the net tightening in euro area bank lending standards, he argued that the bank lending standards were themselves endogenous and highly correlated with euro area real GDP growth.

From the floor, **Goodfriend** asked what role nominal frictions—such as sticky prices and sticky wages—played in the paper's conclusion, and suggested that removing nominal frictions from the model—that is, a real business cycle version of the model—might be suitable for the aim of the paper if the role of the frictions was minor. **Smets** mentioned that the finding regarding the second phase of the Great Recession of 2007–09 (an adverse euro area neutral technology shock that reduced both euro area and U.S. output growth through the international finance multiplier mechanism) seemed counterintuitive, and proposed that the model should be extended so that the banking sector could be introduced and frictions in this sector could affect the neutral technological change. **Berk** also indicated that to explain the phenomena observed in the euro area during the Great Recession, the model might not need the financial accelerator mechanism but a mechanism through which a sharp decline in credit supply induced a fall in output growth.

VII. Policy Panel Discussion

In the policy panel discussion moderated by **Goodfriend**, **Claudio Borio** (Bank for International Settlements), **Bullard**, **Ryuzo Miyao** (BOJ), **Smets**, and **Viñals** presented perspectives on financial fragility and the global financial system, and this was followed by a general discussion from the floor.

Goodfriend began the panel discussion by posing questions on the recent global financial crisis to panelists: whether the recent crisis was a "100-year flood" or something more recurrent; what policy options there were to prevent future crises; and what were the roles and responsibilities of monetary and macroprudential policy.

A. Remarks by Panelists

Borio argued that the Achilles' heel of the international monetary and financial system was its propensity to amplify disruptive financial cycles by weakening the power of domestic policy regimes, such as monetary policy and financial regulation and supervision, to deal with financial imbalances—what he called the system's "excess elasticity." He stressed that attention should be focused on financial imbalances rather than current account imbalances. To attain financial stability, as a first step, it was important to make significant adjustments to domestic monetary, prudential, and fiscal

policies. In addition, there was a need to pay particular attention to the international interaction of monetary policy regimes, so as to better internalize the spillovers involved. There had been some progress domestically, at least on the prudential front, and very limited progress internationally. On balance, progress had been insufficient.

Bullard argued that the most important monetary policy discussion during the past five years had been how to pursue more expansive monetary policy when the policy interest rate was already near zero. He listed three options that central banks could choose under this condition; doing nothing; giving forward guidance; and adopting a quantitative easing policy. He first indicated that doing nothing risked the mildly deflationary situation experienced in Japan in recent years and then suggested that forward guidance depended on the credibility of promises for future monetary policy actions and might send a pessimistic signal about future macroeconomic performance if the central bank's views were weaker than those of market participants. He concluded that the best and the most reliable monetary policy option in this situation was quantitative easing.

Miyao compared the BOJ's recent monetary policy decision with what the BOJ had done during 2001–06 to draw out some implications of the recent decision. Based on the results of his empirical analysis,[11] he indicated that the quantitative easing by the BOJ during 2001–06 had had some positive effect on economic activity and that stock prices had risen with the depreciation of the yen. He next stressed that the BOJ's quantitative and qualitative monetary easing (QQE), which had been introduced in April, was a drastic measure compared to the previous quantitative easing policy both in terms of quantity and quality. Even though there might be upward pressure on long-term interest rates as a result of the expectations of economic recovery, he mentioned that the BOJ's monetary policy would continue to put downward pressure on interest rates and strongly support economic recovery by keeping real interest rates as low as possible.

Smets began his remarks with a discussion of the inflation and financial situation in the euro area from the pre-crisis period up to the current situation. Comparing core and periphery countries in the euro area, he mentioned that—under the common monetary policy—after the crisis financial fragmentation had led to a strong differentiation in real lending rates between the core and periphery countries and that this had contributed to the sovereign risks and banking risks faced by some of the euro area countries. As for monetary policy aimed at combating these risks, he explained that the European Central Bank had implemented both standard and non-standard measures and that these measures had helped to prevent a credit crunch and deflation. However, he indicated that these measures could not substitute for the real rebalancing process, such as a restructuring and recapitalization of the banking sector, a regaining of competitiveness, and a consolidation of fiscal deficits, and that this process was taking much longer than he had previously expected.

Viñals discussed the relationship between macroprudential policy and other policies such as fiscal policy and monetary policy from the viewpoint of preventing systemic risks. He argued that macroprudential policy would remain necessary because systemic

11. For details, see Miyao (2013).

risk still existed after the crisis, even though the type of risks might differ: one type came from excessive leveraging and another was an asset price bubble that stemmed from extraordinarily accommodative monetary policies. However, he indicated that central banks should not rely completely on macroprudential policy and should remain aware of its limits and uncertainties. He argued that the primary responsibility of financial stability lay with macroprudential policy and that monetary policy could sometimes work in a timely manner compared to macroprudential policy. He argued that as the foundation of financial stability, fiscal sustainability should also be ensured.

After the panelists' remarks, **Goodfriend** directed several questions to each of them. He mentioned that he shared Borio's concern about the amplification of financial cycles for the international monetary and financial system. **Borio** replied that the ability of policymakers to deal with future financial crises did not match the strength of these underlying problems. **Goodfriend** asked Bullard about the transmission mechanism from quantitative easing to inflation, foreign exchange rates, and stock prices. **Bullard** replied that quantitative easing lowered longer-term interest rates through the expectation theory of the term structure. As for Miyao's presentation, **Goodfriend** commented that quality as well as quantity was important as the measure of the BOJ's QQE, and furthermore, that to evaluate the power of the QQE it was important to know the average maturity of assets the BOJ would purchase. **Miyao** replied that the average maturity of Japanese government bonds the BOJ aimed to take up was seven years and that this was longer than that under the BOJ's quantitative easing during 2001–06. **Goodfriend** asked Smets if the problem in Europe had very much to do with what had happened in the United States. **Smets** replied that although there were clearly two different crisis stages, the ultimate source—the build-up of imbalances—was common to Europe and the United States. **Goodfriend** asked Viñals which measure was recommended to monitor the quality of capital, the nominal asset base or the risk-weighted base. **Viñals** replied that it was important to look at both the capital ratios in total nominal and risk-weighted assets and that in terms of capital, simpler was better.

B. General Discussions

Calvo commented on inflation targeting in advanced economies, especially Japan. He first mentioned that advanced economies had strived to prevent deflation but not to enhance inflation. He suggested that if they were in a big mess, it was time to forget about inflation targeting for a while. This might help the adjustment by lowering indebtedness, lowering real wages, and so on. Second, he claimed that leaving aside the fact that it was heterodox, if Japan was to generate 2 percent inflation, the Japanese government should raise public utility prices and public sector wages by 2 percent, respectively.

Obstfeld commented on the cause of the euro crisis, the difference between quantitative easing and forward guidance, and the BOJ's quantitative easing during 2001–06. First, he stated that before the euro crisis the global credit boom had accelerated the behavior of banks in the euro area. Since banks in the core euro area countries had invested heavily in U.S. structured products, the first blow to the banks in the euro area had been the loss caused by the drop in the price of such products. The sovereign debt crisis had been the second blow. He pointed out that these were related to each

other. Next, he argued that the distinction between quantitative easing and forward guidance was less sharp in practice, because quantitative easing implicitly affected attitudes toward inflation. Finally, he characterized the BOJ's initial quantitative easing as a very cautionary tale about how difficult it was for such easing to work if it was not accompanied by an appropriate message to the market about future policy.

Daniel G. Sullivan (Federal Reserve Bank of Chicago) commented that quantitative easing and forward guidance really were intimately connected and that they needed to support each other in certain ways to work properly. The Fed's new communication strategy with certain thresholds had some advantages in reinforcing the effect of its quantitative easing.

Shambaugh asked the panelists' views on one of Goodfriend's initial questions, regarding whether the recent crisis was a "100-year flood." He argued that it seemed to him that it was not and that since advanced economies had implemented low-inflation targeting and liberalized financial systems, all three major advanced economies had found their interest rates around zero and their inflation below the target. These facts made him wonder whether any of the panelists had a view as to whether a much more radical rethink of the situation was needed. **Viñals** replied that it was important to make the financial system more resilient to avoid falling into a situation of zero interest rates. **Borio** stated that since financial cycles were not managed by a single policy, a combination of monetary, fiscal, and regulatory policy was required.

Andrzej Sławiński (National Bank of Poland) asked whether macroprudential policy, such as a rise in risk weights for trading, was effective in emerging market economies when capital inflows accompanied by low interest rates in advanced economies limited the possibility of monetary tightening in emerging market economies.

Brunnermeier commented that as in Miyao's presentation, the point of the QQE was to keep long-term real interest rates low. Hence, it was very important to keep the risk premium, especially the term risk premium, under control. To this end, it was important for the BOJ to commit to the inflation target and the monetary base growth target in the long run. Otherwise, uncertainty or risk about forward guidance could emerge. He also argued that the purpose of the BOJ's purchase of longer-term bonds was to shift interest rate risk from the banking and private sectors onto the balance sheet of the BOJ, and this could be a signal of stronger commitment that the BOJ actually held on the QQE.

References

Brunnermeier, M. K., and Y. Sannikov, "'Financial Dominance,"' paper presented at the 2013 BOJ-IMES Conference on "Financial Crises and the Global Financial System," Institute for Monetary and Economic Studies, Bank of Japan, 2013.

Calvo, G. A., "Puzzling Over the Anatomy of Crises: Liquidity and the Veil of Finance," *Monetary and Economic Studies*, 31, Institute for Monetary and Economic Studies, Bank of Japan, 2013, pp. 39–64 (this issue).

Cetorelli, N., and L. S. Goldberg, "Size, Complexity, and Liquidity Management: Evidence from Foreign Banks in the United States," paper presented at the 2013 BOJ-IMES Conference on "Financial Crises and the Global Financial System," Institute for Monetary and Economic Studies, Bank of Japan, 2013.

Hirakata, N., and T. Kurozumi, "The International Finance Multiplier in Business Cycle Fluctuations," paper presented at the 2013 BOJ-IMES Conference on "Financial Crises and the Global Financial System," Institute for Monetary and Economic Studies, Bank of Japan, 2013.

Jeanne, O., "Prudential Capital Controls: Is There a Case for International Coordination?" paper presented at the 2013 BOJ-IMES Conference on "Financial Crises and the Global Financial System," Institute for Monetary and Economic Studies, Bank of Japan, 2013.

Klein, M. W., and J. C. Shambaugh, "Rounding the Corners of the Policy Trilemma," paper presented at the 2013 BOJ-IMES Conference on "Financial Crises and the Global Financial System," Institute for Monetary and Economic Studies, Bank of Japan, 2013.

Kuroda, H., "Opening Remarks," *Monetary and Economic Studies,* 31, Institute for Monetary and Economic Studies, Bank of Japan, 2013, pp. 21–24 (this issue).

Miyao, R., "Central Banking Further into Uncharted Territory," speech at the Foreign Correspondents' Club of Japan on May 28, 2013 (available at http://www.boj.or.jp/en/announcements/press/koen_2013/ko130528a.htm/).

Obstfeld, M., "On Keeping Your Powder Dry: Fiscal Foundations of Financial and Price Stability," *Monetary and Economic Studies*, 31, Institute for Monetary and Economic Studies, Bank of Japan, 2013, pp. 25–38 (this issue).

APPENDIX 1: PROGRAM

Wednesday, May 29, 2013

Morning

Opening Session

Chairperson:	**Tomoo Yoshida**, Bank of Japan
Opening Remarks:	**Haruhiko Kuroda**, Bank of Japan
Keynote Speech:	**Maurice Obstfeld**, University of California at Berkeley

Session 1: Prudential Capital Controls: Is There a Case for International Coordination?

Chairperson:	**Daniel G. Sullivan**, Federal Reserve Bank of Chicago
Paper Presenter:	**Olivier Jeanne**, Johns Hopkins University
Discussant:	**Eric B. Santor**, Bank of Canada

Session 2: Rounding the Corners of the Policy Trilemma

Chairperson:	**Jan Marc Berk**, De Nederlandsche Bank
Paper Presenter:	**Jay C. Shambaugh**, George Washington University
Discussant:	**Keen Meng Choy**, Monetary Authority of Singapore

Afternoon

Mayekawa Lecture

Chairperson:	**Anne Le Lorier**, Banque de France
Lecturer:	**Guillermo A. Calvo**, Columbia University

Session 3: Size, Complexity, and Liquidity Management: Evidence from Foreign Banks in the United States

Chairperson:	**Kazuo Momma**, Bank of Japan
Paper Presenter:	**Linda S. Goldberg**, Federal Reserve Bank of New York
Discussant:	**Esa Jokivuolle**, Bank of Finland

Session 4: "Financial Dominance"

Chairperson:	**Jun Il Kim**, Bank of Korea
Paper Presenter:	**Markus K. Brunnermeier**, Princeton University
Discussant:	**Jonathan L. Willis**, Federal Reserve Bank of Kansas City

Conference Dinner

Guest Speech:	**Stanley Fischer**, Bank of Israel

Thursday, May 30, 2013

Morning

Session 5: The International Finance Multiplier in Business Cycle Fluctuations

Chairperson:	**Anders Vredin**, Sveriges Riksbank
Paper Presenter:	**Takushi Kurozumi**, Bank of Japan
Discussant:	**Paul R. Wood**, Board of Governors of the Federal Reserve System

Policy Panel Discussion

Moderator:	**Marvin Goodfriend**, Carnegie Mellon University
Panelists:	**Claudio Borio**, Bank for International Settlements
	James B. Bullard, Federal Reserve Bank of St. Louis
	Ryuzo Miyao, Bank of Japan
	Frank Smets, European Central Bank
	José Viñals, International Monetary Fund

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Sharmila Devadas	Bank Negara Malaysia
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