Masaaki Shirakawa: 150 years of innovation and challenges in monetary control

Speech by Mr Masaaki Shirakawa, Governor of the Bank of Japan, in celebration of the 150th anniversary of German-Japanese diplomatic relations, Frankfurt am Main, 8 March 2011.

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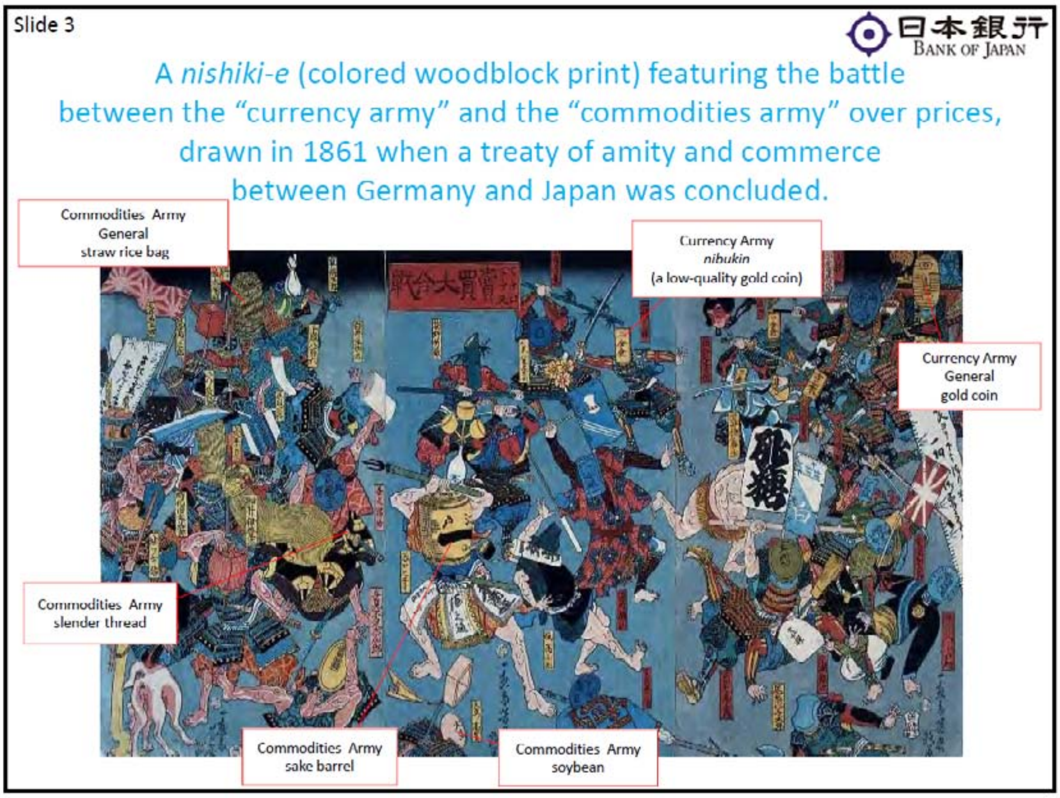
I. Introduction

I am honored to have the opportunity today to speak at Goethe University (Goethe-Universität Frankfurt am Main) in celebration of the 150th anniversary of German-Japanese diplomatic relations. I would first like to express my thanks for the warm words of welcome from Dr. Hölscher, Permanent Undersecretary of the Ministry of Finance of Hessen, Dr. Raettig, Deputy Mayor of the City of Frankfurt, and Mr. Shigeeda, Consul-General of Japan. I also extend my sincere gratitude to Professor Gerlach of the Institute for Monetary and Financial Stability, who has made today's speech possible.

The Bank of Japan (Slide 1) stationed its representative in Berlin from 1919, just after World War I, and established its representative office here in Frankfurt in 1956. Frankfurt is a unique city in the world, with two central banks, the Deutsche Bundesbank and the European Central Bank (ECB) (Slide 2). The Bank of Japan has been developing very close ties with both of them. I would like to express my gratitude to the Bundesbank, the ECB, and everyone here in Germany for your support of the Bank of Japan's Frankfurt representative office.

About 150 years ago, in 1860, a Prussian expedition to East Asia visited Edo, now Tokyo, and in 1861 concluded a treaty of amity and commerce, which became the foundation of the subsequent close relationship between Germany and Japan. This was in fact quite an interesting period in Japan's financial and economic history. In the 1850s, the price of gold relative to silver in Japan was set considerably lower than in international markets and as a result there were massive outflows of gold in a short period of time. In response, the Japanese government issued new gold coins with a much lower gold content. In the process, inflation rose rapidly due to the expansion of the money stock. There is a caricature drawn in Japan in 1861 that vividly illustrates the economic turmoil at the time (Slide 3). It shows the scene of a battle between two armies – a "currency army" with a gold coin as general, and a "commodities army" with a straw rice bag as general – with one shouting, "Prices, we will defeat you!" and the other replying, "No, we will not be defeated!" It could thus be said that Japan at the end of the premodern era found itself suddenly thrown into the currents of international financial markets, and I am sure that the Prussian expedition was able to observe the resultant turmoil Japan's economy experienced.



While there certainly has been some progress over the past 150 years in the area of monetary control, we probably have not made as much progress as we would like, as shown by the recent global financial crisis. Monetary control is critical for the stability of the economy. Thus, today I have chosen to talk about "150 Years of Innovation and Challenges in Monetary Control," drawing on examples from Germany – and Europe more generally – as well as Japan, from the perspective of a central bank governor.

II. Four innovations in monetary control

In the history of economic activity, the invention of money itself of course represents an extremely important innovation. Since then, there have been numerous innovations in monetary control. In what follows, I would like to start with four innovations that I consider particularly important in modern times.

The invention of central banks

The first and greatest innovation was the invention of institutions called central banks. In Germany, the first central bank was set up with the establishment of the Reichsbank in 1876, while the Bank of Japan was established in 1882.[1] At that time, there were still only about a dozen central banks in the world. Of course, most countries today have a central bank. The establishment of central banks meant that the supply of money was not necessarily influenced by gold discoveries and other vagaries anymore, and it became possible to actively control money in a systematic manner through transactions in financial markets.

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[1] For a history of modern central banks, see Forrest Capie, Charles Goodhart, Stanley Fischer, and Norbert Schnadt, *The Future of Central Banking: The Tercentenary Symposium of the Bank of England*, 1994.

The invention of a "lender of last resort"

The second innovation is the idea of central banks as a "lender of last resort." In 1861, the year that the treaty of amity and commerce between Germany and Japan was concluded, Walter Bagehot became editor-in-chief of *The Economist* magazine in England. As you probably know, he later wrote a famous book, *Lombard Street*, a treatise on the best central bank practices, providing the first-ever systematic analysis of the roles of a central bank.

In the book, he formulated what came to be called Bagehot's rule, namely that, to prevent disruption in the financial system in times of crisis, the central bank should act as a lender of last resort, providing unlimited funds at punitive rates.[2] The practical application of Bagehot's rule has been modified in line with changes in financial market structures, and in the recent global financial crisis, central banks – including the ECB and the Bank of Japan – aggressively provided funds to the markets as the lender of last resort, thereby preventing a collapse of the financial system. The establishment of the principle of the lender of last resort is of significant importance.

The invention of monetary policy

The third major innovation I would like to mention, although it may sound somewhat strange, is the "invention of monetary policy." While I will touch later on the issue of how to define monetary policy, for the time being I will use the term in the conventional sense of "policy that aims at actively influencing the inflation rate or the economic growth rate by controlling the level of short-term interest rates." Under the gold standard, the quantity of money was constrained by gold holdings and thus the central bank could not influence the price level and economic activity in an active manner. In this sense, central banks had limited room to deploy monetary policy. In fact, monetary policy was not discussed in Bagehot's book. Monetary policy worthy of the name started only with the transition to a fiat money system. Nowadays, appropriate monetary policy conduct has become one of the key tools contributing to macroeconomic stability.

The introduction of the concept of central bank independence

Finally, the fourth innovation has been the idea of central bank independence. While it is only relatively recently that central bank independence has become firmly established in countries around the world, interestingly, in Europe active discussions on the enhancement of central bank independence already took place in the wake of World War I. For example, at the 1922 Genoa International Economic Conference, which aimed at restructuring the international economic and financial system in the post-World War I period, in the resolution concerning currency there was a proposal that "banks, and especially banks of issue, should be free from political pressure."[3] It goes without saying that, in subsequent decades, the German public and the Bundesbank played a significant role in establishing the concept of central bank independence at an early stage. Let me note that, when stationed in Berlin early in his career, Mr. Hisato Ichimada – who later became the Governor of the Bank of Japan for eight years immediately after the end of World War II – witnessed the so-called "miracle of the Rentenmark" (or "Wunder der Rentenmark") that ended hyperinflation in Germany in the post-World War I period. It is said that he utilized this experience when he conducted monetary policy in Japan's post-World War II period (Slide 4).

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[2] See Walter Bagehot, *Lombard Street: A Description of the Money Market*, 1873.

[3] See *Papers Relating to International Economic Conference, Genoa, April–May, 1922*, 1922.

The idea of central bank independence has begun to become firmly established in countries around the world since the early 1990s. For instance, the Maastricht Treaty signed in 1992 stipulated central bank independence as one of the conditions for joining the euro, while in Japan the Bank of Japan's independence in the conduct of monetary policy was stated in law through the revision of the Bank of Japan Act in 1998. As central banks gained independence in their monetary policy, this made it legally possible for them to serve as a medium- to long-term anchor for money.

There have been various other innovations in monetary control apart from the four I just mentioned. Money supply targeting is one of them. While the Bank of Japan did not adopt money supply targeting, many central banks in the advanced economies, including the Bundesbank, adopted it from the 1970s through the first half of the 1980s. However, subsequently, as the stable relationship between money supply on the one hand and the inflation rate and economic activity on the other broke down due to technological innovations in finance, money supply targeting became ineffective and was consequently abandoned. In this regard, the Bank of Canada Governor Gerald Bouey famously stated that "we did not abandon money supply targets, they abandoned us." It could thus be said that the specific methods of monetary control have changed as a result of technological innovation.

Since the latter half of the 1980s, many central banks have adopted inflation targeting – excluding, however, the Federal Reserve, the ECB, and the Bank of Japan. This approach has been effective in containing inflation or entrenching inflation levels that had already come down. However, it seems that this framework, or the focus on the stability of general prices underlying it, now faces new challenges. From the viewpoint of price stability, economic performance was benign for a prolonged period through the mid-2000s, giving no apparent cause for concern, but a large-scale credit bubble built up, culminating in the global financial crisis. As a result, numerous advanced economies are currently experiencing severe balance-sheet adjustments associated with the bursting of the bubble. These developments are having a subtle impact on how inflation targeting and, for that matter, monetary policies are managed.

Having said that, I am by no means arguing that there is no point in money supply targeting or inflation targeting. In my view, history seems to suggest that – be it with regard to the lender of last resort function or monetary policy – it is necessary to constantly review measures of monetary control in light of changes in the environment. In other words, constant innovation is necessary.

III. Central banks' policy responses following the global financial crisis

Next, from this perspective of constant review and innovation, I would like to move on to various unconventional policy measures that major central banks took in the course of the recent severe financial crisis. While the term "unconventional policies" can be understood by different people in a number of ways, in what follows I will talk about unconventional policies by dividing them into two categories: first, measures taken in the midst of the recent financial crisis as part of central banks' lender of last resort function and aimed at ensuring the stability of the financial system, and second, measures taken in less difficult times, after the crisis had settled, that aim at stabilizing economic activity.[4]

As for the former, the measures were, in essence, in line with the lender of last resort principle emphasized by Bagehot. However, naturally, the financial system in the 21st century is not quite the same as that in the 19th century when Bagehot lived. Central banks around the world have faced new challenges he never imagined, and have worked with considerable ingenuity.

Resolving the issue of stigma

In the course of the recent financial crisis, the first challenge was to resolve the stigma attached to receiving emergency funds from the central bank. While aggressive liquidity provision is critical in a crisis, financial institutions might hesitate to borrow funds even in an emergency and try to raise funds in the market at all costs out of fear that their perceived creditworthiness will decline if it becomes known that they received emergency funds. As a result of such collective behavior, the liquidity shortage will accelerate further and interest rates will rise.

Under the mechanism described by Bagehot, it is assumed that liquidity is provided based on negotiations with individual financial institutions, which, however, would stigmatize such institutions. To overcome this problem, major central banks have introduced new measures. For example, the Federal Reserve in 2007 introduced the Term Auction Facility (TAF), under which the range of financial institutions eligible for funds-supplying operations was substantially broadened, the duration of funds provided was significantly lengthened, and interest rates on funds were determined by auction. And the ECB in 2008 fixed the rate for its operations to the policy rate and initiated monetary control that provides unlimited funds upon request from financial institutions.

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4 For the policy responses taken by major central banks, see Monetary Affairs Department, Bank of Japan, "Major Central Banks' Policy Conduct during the Current Financial Crisis," 2009 (available only in Japanese); and Brian F. Madigan, "Bagehot's Dictum in Practice: Formulating and Implementing Policies to Combat the Financial Crisis," speech given at the Federal Reserve Bank of Kansas City's Annual Economic Symposium in Jackson Hole, Wyoming on August 21, 2009.

Responding to the evaporation of market liquidity

The second challenge was to respond to the evaporation of market liquidity. When writing about declining liquidity, Bagehot also referred to liquidity in the government bond market in a crisis, but in his time there were neither the kind of complex financial products nor the derivatives transactions we see today. Therefore, in his day, systemic risk referred mainly to a contagious bank run on deposits. However, as a result of financial globalization and technological innovations, the forms in which systemic risk manifests itself have become more complex and diverse. If counterparty risk heightens, that is, market participants become concerned about the creditworthiness of counterparties, this can result in an "evaporation of market liquidity," in which counterparties disappear from the market. If fire sales of assets spread and market prices start to plunge, the capital position of a large number of financial institutions may erode due to valuation losses on assets, which could develop into a solvency problem of financial institutions. To avoid such a situation, liquidity provision through traditional lender of last resort measures alone will not be sufficient. Instead, someone needs to serve as a trusted counterparty standing between market participants that no longer trust each other. During the crisis, it was central banks that played this role.

In this situation, major central banks implemented measures that in essence directly provided liquidity to fund-raisers in markets where market functioning had deteriorated significantly. For example, in 2008, the Federal Reserve introduced a policy measure to lend to CP issuers and holders of asset-backed securities (ABSs). The Bank of Japan also purchased CP, asset-backed commercial paper (ABCP), and corporate bonds in order to cope with the rapid decline in liquidity in these markets, which were the main funding sources for large firms that were directly hit by the financial crisis.

Provision of foreign currency liquidity

The third challenge was the provision of foreign currency liquidity. In Bagehot's day, liquidity meant liquidity in the home currency for domestic transactions and gold for international transactions. There is a reference in Bagehot's book to a situation in which the Bank of England did not sufficiently carry out its lender of last resort function due to concerns over a shortage of gold. During the recent financial crisis, liquidity in the U.S. dollar funds market declined significantly and dollar funding became an extremely pressing issue, especially for private financial institutions whose home currency was not the dollar. In order to ensure that central banks could smoothly provide dollars to home financial institutions, financial institutions needed to have a sense of security that central banks themselves could provide unlimited amounts of dollars. To this end, major central banks, including the ECB and the Bank of Japan, secured dollar funds by making currency swap arrangements with the Federal Reserve and then introduced dollar funds-supplying operations domestically. The currency swap arrangements were made not only for the dollar but also for other currencies. For example, the ECB and the Swiss National Bank established a currency swap arrangement for Swiss franc funding, and the Bank of Japan and the Bank of Korea established a currency swap arrangement for yen funding, both of which contributed to restoring stability in foreign currency funding markets.

Unconventional monetary policies

Since the recent financial crisis, major central banks have also been implementing unconventional policies that aim at stabilizing economic activity. These are intended to deal with the challenge of achieving monetary easing effects to return the economy to a stable recovery path when nominal short-term interest rates are already near zero. One example is the increase in the government bond purchases decided by the Federal Reserve in the autumn of 2010, which aimed at absorbing interest risks in the private sector and lowering long-term interest rates. Another example is the comprehensive monetary easing decided on by the Bank of Japan in the autumn of 2010, which includes various unconventional measures. The measure is quite exceptional in that the eligible assets for monetary policy operations were expanded to include not only government bonds but also CP, corporate bonds, exchange-traded funds (ETFs), and real estate investment trusts (REITs). The Bank of Japan's purchases aim at stimulating economic activity through a reduction in various risk premiums, as there is little room for a decline in short-term interest rates.

IV. The Bank of Japan's policy response after the 1990s: the bursting of Japan's asset bubble

Looking at the outcome, it can be said that the unconventional measures to deal with the global financial crisis have been effective. At the same time, though, the measures pose new challenges. Before discussing these new challenges in detail, let me digress slightly and talk about the unconventional policies that the Bank of Japan hammered out from the latter half of the 1990s in response to the bursting of the asset bubble. This experience meant that the Bank of Japan had to deal with the consequences of the bursting of a bubble and the ensuing economic and financial difficulties ahead of other countries. There is not sufficient time to elaborate today on this point, but let me note that the Bank of Japan has been a lonely forerunner in terms of the adoption of unconventional policies such as the introduction of quantitative easing and of a policy duration commitment in 2001. In the course of the current financial crisis, many other central banks have implemented measures that are in essence similar to the Bank of Japan's, although they may differ in detail. This shows that what we are experiencing during the current global financial crisis is not a special case but reflects changes that are more or less universal. With this in mind, let me explain some of the unconventional policies pursued by the Bank of Japan, focusing on three measures in particular.[5]

Fund provisioning to Yamaichi Securities

The first measure is the provision of loans as a lender of last resort to a securities company whose solvency could not be judged clearly. In the autumn of 1997, massive off-balance-sheet liabilities were suddenly revealed at Yamaichi Securities, one of the biggest securities companies in Japan at the time, and it was decided to liquidate the company. However, the company had bank subsidiaries in Europe, and at that time other Japanese financial institutions held a large amount of impaired assets. Thus, it was judged that an immediate legal liquidation would very likely pose a systemic risk. The Bank of Japan, therefore, decided to provide Yamaichi with an unlimited amount of liquidity to support the orderly closure of its business operations. However, because the disclosure of off-balance-sheet liabilities occurred suddenly and financial markets were unstable, there remained uncertainty about the value of Yamaichi's net assets. The premise of Bagehot's rule is that the counterparty financial institutions are solvent so that they can submit good-quality collateral. Since this was not the case, it was all the more difficult for the Bank of Japan to decide the proper course. Regrettably, at Yamaichi's subsequent legal bankruptcy proceedings, it was determined in 2005 that part of the loans by the Bank of Japan to Yamaichi were unrecoverable. However, it should be noted that a situation like the one after the failure of Lehman Brothers, when real quarterly GDP contracted at a double-digit rate on a year-on-year basis, was avoided. In other words, the measure prevented the worst-case scenario of having Japan's financial crisis in the latter half of the 1990s trigger turmoil in the global financial system.

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[5] The Bank of Japan implemented other innovative measures apart from the three measures mentioned here. For example, in 2001 the Bank of Japan introduced the bill purchasing operation conducted at all of its branches, providing longer-term funds to a wider range of counterparties including local financial institutions. This measure is similar to the Federal Reserve's TAF.

Operation twist to facilitate foreign currency funding

The second policy measure pursued by the Bank of Japan concerns foreign currency liquidity. In the latter half of the 1990s, Japanese banks, amid serious concern about their soundness, faced difficulties in raising U.S. dollar funds, especially longer-term ones. In this situation, the Bank of Japan, as part of its funds-supplying operations, provided longer-term yen funds. Japanese banks exchanged these yen funds for dollar funds in the foreign currency swap market with foreign banks as their counterparties. Viewed from the foreign banks' side, such transactions were dollar loans using yen funds as collateral. Therefore, even under the zero interest rate environment, they accepted the trades as long as yen funding rates were negative, despite the deteriorated creditworthiness of Japanese banks. However, foreign banks had to find safe investment opportunities for their yen funds. In this regard, interest-bearing bills issued by the Bank of Japan to absorb shorter-term yen funds became suitable investment opportunities. Bills sold were safe and had no default risk. This string of trading ultimately had the effect that the Bank of Japan became the counterparty of both Japanese and foreign banks, thereby promoting smooth dollar funding for Japanese financial institutions.

The stock purchasing program

The third measure, introduced in 2002, is the Bank of Japan's purchase of stocks held by commercial banks. At that time, Japanese banks held large amounts of stocks on their balance sheets. Therefore, market risk associated with stock price volatility was a major risk for Japanese banks, and the adverse feedback loop of falling stock prices, restrained lending, and a deterioration in the real economy became a problem. In these circumstances, the Bank of Japan decided to purchase stocks held by commercial banks. This measure was very unorthodox, but was an effective tool in ensuring stability in the financial system and the real economy through the reduction of market risk associated with banks' stockholdings. The credit easing and the large-scale asset purchase (LSAP) programs adopted by the Federal Reserve during the current financial crisis are very similar to the Bank of Japan's stock purchasing program in that in both cases the central bank absorbs private-sector risks and thereby aims at improving financial conditions.

V. New challenges

As shown by the examples I have mentioned, central banks in the major economies – in their role as monetary policy authorities – have been implementing innovative policy measures, though they adopted the measures at different times: since the latter half of the 1990s in the case of the Bank of Japan and the current global financial crisis in the case of the Federal Reserve and the ECB. These policy measures have helped to prevent a depression as deep as the one that occurred in the 1930s. At the same time, however, as central banks stepped outside the framework of conventional behavior, they have been confronted with new associated challenges.

The division of roles between the government and the central bank

The first challenge is the division of roles between the government and the central bank. When acting as the lender of last resort in a crisis, the central bank must judge whether the problem it is dealing with is a liquidity problem or a problem concerning financial institutions' solvency. If the problem is one of a shortage of liquidity, it is the central bank that should act, based on Bagehot's rule. In contrast, if the problem concerns the solvency of one or more financial institutions, it is the government that needs to act by, for example, injecting public funds. However, in reality, and especially during a crisis, it is often difficult to distinguish between these two problems, as shown by the case of Yamaichi Securities mentioned earlier. Moreover, even if it is possible to tell the difference, the decision of injecting public funds tends to be delayed because it is politically unpopular. However, a financial crisis does not allow us to wait for such a political decision.

The problem of the division of roles between the government and the central bank remains even after the acute symptoms have disappeared. At present, policy rates in major economies are virtually zero and these economies face balance-sheet constraints due to the bursting of the bubble. For example, in the United States, unemployment continues to be high on the back of balance-sheet adjustments in the household sector. In this situation, the Federal Reserve has announced that it would purchase 600 billion U.S. dollars in longer-term Treasury securities until June 2011. The Bank of Japan started comprehensive monetary easing in the autumn of 2010, and as part of this, has purchased corporate bonds, REITs, and ETFs. In a zero interest rate environment, if a central bank aims to stimulate economic activity through monetary policy, one option is to seek a reduction in risk premiums through purchases of assets with relatively high credit risk. So far, such policy measures have been relatively effective. At the same time, it cannot be ruled out that central banks eventually incur losses through these measures. Moreover, there is an increasing possibility that central banks will no longer be seen as neutral institutions, partly due to their stronger intervention in resource and capital allocation at the micro level. If this happens, public confidence in central banks – the very foundation for policy implementation – could be undermined.

The reason why central banks are granted independence is fundamentally that their mission is to provide liquidity. The more policy measures become involved in the micro-allocation of resources and capital, the more these measures have the flavor of quasi-fiscal policy. However, in a democracy, fiscal policy is and should be decided by parliament. At the same time, however, central banks need to act flexibly in response to a crisis to maintain economic and financial stability. I do not think there is a universally applicable answer to the problem of the division of roles between the government and the central bank. The Bank of Japan has been addressing this problem by making tough decisions based on, for example, the severity of economic conditions, the legal framework for the central bank, and society's tolerance of central bank involvement.

What should the role of monetary policy be?

As we consider these difficult issues, it is stating the obvious that the most important thing is to take preemptive measures to avoid falling into such a situation in the first place. In this regard, it is critical to take a deep look at the role monetary policy should play.[6] It seems to me that in the past two decades, no other issue has been as frequently discussed as how monetary policy should respond to a bubble. The orthodox view prior to the recent global financial crisis, put simply, was that monetary policy should not respond to a bubble and that any resulting problems could be resolved if central banks took aggressive policy measures after the bubble had burst. In this context, Japan's "lost decade" tended to be simply dismissed as mainly due to the delayed policy response of Japanese authorities. However, we are now entering the fifth year since the bursting of the housing bubble in the United States and real GDP there has hardly increased in the meantime. Thus, I think few today would support the optimistic view that any problems resulting from the burst of a bubble can be easily resolved through aggressive policy measures after the fact.

The first lesson that could be drawn from the experience of the past two decades is that, while price stability is important, this alone does not guarantee that the economy is stable. Looking back at the causes of the recent financial crisis, we find that financial imbalances in various forms, such as the rise in asset prices, the increase in credit, the increase in leverage, and the increase in maturity mismatches, had built up to an extent that became

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[6] See, for example, Masaaki Shirakawa, "Revisiting the Philosophy behind Central Bank Policy," speech at the Economic Club of New York on April 22, 2010.

unsustainable. The causes of these financial imbalances are complex, and although failures in financial institutions' risk management and a delay in adequate regulation and supervision have no doubt played a role, this is not all. At the root of the financial imbalances was the expectation that interest rates would remain low. The subdued inflation seen in many advanced economies in the run-up to the global financial crisis gave rise to expectations that accommodative monetary conditions would continue for an extended period into the future. Of course, bubbles are not generated by expectations for protracted low interest rates alone, but it is also true that bubbles do not arise without such expectations. While price stability is important, paying too much attention to the near-term inflation outlook could impair the stability of the financial system, which is critical from the viewpoint of economic stability – the ultimate goal of price stability.

The second lesson is the danger of monetary policy swinging too far in the direction of fine-tuning. Of course, it would be ideal if fine-tuning were possible, but in my view, monetary policy has a more important role to play, namely ensuring economic and financial stability in the medium to long term. In his famous presidential address to the American Economic Association in 1967, Milton Friedman stated that "the first and most important lesson that history teaches about what monetary policy can do – and it is a lesson of the most profound importance – is that monetary policy can prevent money itself from being a major source of economic disturbance." Seeing the significant decline in the level of real GDP in advanced economies following the collapse of Lehman Brothers and continuing high unemployment, I keenly feel it is important to prevent money itself from becoming a major source of economic disturbance.

While it is not easy to apply these lessons in practice, policy authorities must tackle the challenges I have mentioned, and in fact they are already making various efforts to do so. In this regard, in terms of the conduct of monetary policy, the ECB and the Bank of Japan seem to be taking similar approaches. The ECB has adopted a "two-pillar approach" – consisting of economic analysis that focuses on economic and financial developments and assesses the short- to medium-term determinants of price developments, and of monetary analysis that examines medium- to long-term price developments from a monetary perspective – and then cross-checks the results. Similarly, the Bank of Japan's monetary policy conduct is based on a "two-perspective approach." The first perspective focuses on economic and price conditions one to two years ahead and examines whether, in the Bank of Japan's baseline scenario, the economy follows a sustainable growth path with price stability. The second perspective also includes a longer time horizon and, from the viewpoint of achieving sustainable economic growth with price stability, examines risk factors that have a low probability of materializing but that could have a large impact on economic activity and prices if they do materialize. In my view, what the monetary policy frameworks of the ECB and the Bank of Japan have in common is that they both deliberately incorporate the practice of examining financial imbalances using various types of information.

Regardless of what framework central banks adopt in their monetary policy, preparing for so-called tail risks will be increasingly important. As shown by Japan's experience and the recent global financial crisis, preparing for risks which have a low probability but could have a large impact if they materialize is crucial. The keyword in the debate currently in progress on this issue is "macro-prudential policy." The first critical step in this direction is to accurately understand risk profiles at the macro level. In Europe, this will be the task of the European Systemic Risk Board, which was set up in January this year. Together with such steps on the analytical front, it will also be necessary for societies as a whole to consider whether or not to take preemptive measures for tail risks. In this regard, a major premise for the conduct of macro-prudential policy is the independence of, and a clear mandate for, the macro-prudential authority. However, it is optimistic to think that this alone will lead to the implementation of the necessary policies. The key is whether a social consensus can be built that – because of the high costs involved in dealing with a bubble once it has arisen – the macro-prudential authority should “take away the punchbowl” even when economic conditions still seem benign.

VI. Concluding remarks

My speech today focused on the topic of “150 Years of Innovation and Challenges in Monetary Control.” The four innovations I mentioned have played an important role in monetary control and consequently in achieving economic stability. However, in the practical application of these innovations, constant adaptation to changes in the financial and economic environment is necessary. In this regard, I discussed the challenges we face regarding the lender of last resort function, central bank independence, and monetary policy. In terms of the existence of central banks, which I pointed out as the first of the four innovations, it is essential that central banks take policy actions in response to changes in the environment. If we think about the next 150 years ahead, financial and economic globalization are bound to advance further. Thus, for central banks to function as true “central banks” rather than as local banks in individual countries, cooperation among central banks is essential. International cooperation is necessary not only among central banks but also at various levels of government and in the private sector. Let me conclude my speech today by expressing my hope that the friendship and cooperation between Germany and Japan in this regard will continue to prosper in the future.

Thank you for your attention.