Demographic Changes and Macroeconomic Performance:

Summary of the 2012 BOJ-IMES Conference Organized by the Institute for Monetary and Economic Studies of the Bank of Japan

by Hiroshi Fujiki, Naohisa Hirakata, Kentaro Morishita, and Tomoo Yoshida

I. Introduction

The Institute for Monetary and Economic Studies (IMES) of the Bank of Japan (BOJ) held the 2012 BOJ-IMES Conference, entitled "Demographic Changes and Macroeconomic Performance," on May 30 and 31, 2012, at the BOJ Head Office in Tokyo.[1] The conference sought to shed light on the implication of demographic changes and their effect on macroeconomic performance. The conference involved some 110 distinguished participants from academia, international organizations, and central banks.[2]

The conference began with opening remarks, delivered by the Governor of the BOJ, **Masaaki Shirakawa**. The honorary adviser of IMES, **Marvin Goodfriend** (Carnegie Mellon University) gave the keynote speech. **Otmar Issing** (Goethe University Frankfurt) presented the Mayekawa Lecture. Thereafter five academic papers were presented, and the conference concluded with a policy panel discussion.

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1. The conference organizers express their sincere gratitude to Maurice Obstfeld and Marvin Goodfriend, the honorary advisers; to Kazuo Ueda, the chief councillor; and to all other conference participants for thought-provoking presentations and discussions. The views expressed throughout this summary are the views of the speakers and do not necessarily reflect the views 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 30–31, 2012.

II. Opening Remarks

In his opening remarks,[3] **Shirakawa** argued that basic research on demographic changes and their policy implications was indispensable for the sake of economic policy formulation. At the beginning, he emphasized that Japan's experience of how the demographic changes affected macroeconomic performance was not well appreciated. Then he briefly introduced demographic changes in Japan during the post–World War II period and identified the issues related to Japanese macroeconomic performance. Finally, he touched on the policy implications.

Regarding the Japanese demographic changes during the post–World War II period, he mentioned the high growth rate of the population in the aftermath of World War II and the rapid pace of decrease in that growth rate after the 1950s. He also pointed out that the repeated declines in the total fertility rate had long been regarded as a one-off aberration for each point in time and that comprehension of the far-reaching implications of the changes was even more delayed. Next, he discussed the effects of demographic changes on the Japanese economy in terms of three aspects: first, he suggested adopting slightly more realistic approaches that incorporated other factors such as labor participation in addition to total population, the single input factor of labor considered by the classical Solow growth model when analyzing the effect of population on the economic growth rate. Second, he explored various channels to explain the linkage between demographic changes and inflation rates with examples from the advanced countries. Third, he expressed disagreement concerning the viewpoint that the current account balance would turn to a deficit with the Japanese population aging. Lastly, he indicated that the effects of population aging on an economy could vary, depending on the flexibility of a nation's economy and society, and remedies could be found if society judged that changes in the systems were needed. He mentioned several options for possible changes.

III. Keynote Speech: The Elusive Promise of Independent Central Banking[4]

Goodfriend argued that an independent central bank needed the double discipline of a priority for price stability and bounds in expansive credit initiatives to secure its promise for stabilization policy. First he reviewed the historical development of independent monetary and credit policy at two central banks, the Bank of England and the Federal Reserve. These two central banks had arrived at independent monetary and credit responsibility only gradually. He also emphasized that the two central banks had pursued their independent monetary policy powers very differently as a result of their governance structure. Next he discussed the policy responses of the Fed to the 2007–08 credit turmoil and pointed out that expansive credit initiatives had undermined the Fed's legitimacy and potentially its capacity to pursue monetary stability effectively. He suggested that (1) the U.S. Congress should accept the Fed's 2 percent

3. For details, see Shirakawa (2012).
4. For details, see Goodfriend (2012).

inflation objective to secure its credibility for low inflation, (2) the Fed should adhere to a "Treasury-only" asset acquisition policy to avoid risks to the Fed's balance sheet, (3) payment of all interest income on the Fed's Treasuries should go to the fiscal authorities, and (4) boundaries on expansive credit policy should be authorized prior to the action by the Congress. He also said that the most important consideration was to alert taxpayers to the potential future cost of the Fed's credit initiatives in the authorization process. He concluded that strong legislative action to protect the legitimacy of the Fed's independence and limit expansive Fed credit policy actions in the future would help prevent a repetition of the boom and bust cycle in money market finance.

IV. The Mayekawa Lecture: Central Banks—Paradise Lost[5]

Issing strongly criticized the argument for expanding the role of central banks beyond their traditional role of price stability following a financial crisis. He first summarized the consensus of monetary policy before the financial crisis: independence in the conduct of monetary policy, a clear mandate, and prohibition of monetary financing. He mentioned that the debate regarding the central banks' desirable mandate—either a single mandate of price stability (low and stable inflation) or a dual mandate including stabilizing short- and medium-run employment in addition to price stability—was inconclusive. Similarly, a discussion of the effectiveness of the inflation targeting remained under debate. He emphasized, however, that it was the consensus that central banks could not resolve a long-run structural unemployment problem even if central banks were subject to a dual mandate; and it was the consensus that monetary policy should be rule-based, forward-looking, and transparent in the decision-making process and corresponding communication with the public. He suggested that the "great moderation" might be partly explained by the conduct of monetary policy based on the consensus, when central bank reputations were at their peak.

He then discussed the role of central banks in regard to financial stability. Prior to the crisis, a majority had argued that the role of central banks in asset price bubbles was to mop up after the bursting of a bubble. He referred to recent empirical studies that suggested the effectiveness of a change in central banks' interest rate to stabilize financial markets. However, he criticized the argument that a policy rule which aimed at financial stability in addition to price stability could prevent a financial crisis, while simultaneously achieving price stability. He also warned against the argument including financial regulation and supervision as part of the mandate of central banks. The reason, he suggested, was that having these additional tools to achieve financial stability raised the question for central banks of political responsibility and led to a loss of their independence. He then suggested that there was a risk of conflict between price stability and financial stability.

Finally, he criticized the purchase of government bonds for the sake of financial stability by central banks. He suggested that the crisis recalled the role of central banks as a lender of last resort, and that subsequent purchase of government bonds by central

5. For details, see Issing (2012).

banks gave a misperception of central banks as ultimate buyers of government bonds. Excluding the case when there was a clear rationale for coping with deflationary risk, he cautioned strongly against fiscal financing, which led to a loss of confidence vis-à-vis central banks and a loss of the anchor of inflation expectations, and resulted in rising and highly volatile inflation. He concluded his lecture by mentioning that the resistance to expanding the role of central banks would incur short-run blame, while central banks needed to explain their role and limitation in a convincing manner.

From the floor, **Donald L. Kohn** (The Brookings Institution) asked what central banks should do in a situation such as hitting a zero lower bound if they could not purchase government bonds. **Issing** reemphasized that purchasing government bonds to achieve monetary expansion was not a problem, but the problem was purchasing the bonds for fiscal reasons. Furthermore, **Goodfriend** asked what central banks should do if they had some independent power to save the society, but what they could do was against the rule. **Issing** argued that central banks were principally established for a simple purpose and had independence to deliver within a limited mandate. They needed to resist the notion that others had a mandate to save the society. Although he recognized that Europe was a special case because European politicians could not deliver a solution but the European Central Bank (ECB) could act, he suggested that the ECB was not the savior. Related to the point made by **Kohn, Nout Wellink** (formerly, De Nederlandsche Bank) pointed out that the ECB had started the Securities Markets Programme (SMP) to facilitate the monetary transmission process and asked for clarification on whether the purchase by the SMP corresponded to the monetary explanation. **Issing** said, as an example, that influencing the term structure constituted monetary policy. He also mentioned that the ECB was again a special institution, because there was no clear answer regarding which government bonds would be purchased and that their purchase was considered to be an aspect of political discretion. **Shirakawa** asked about how to communicate with the general public to avoid financial imbalances when using the two-pillar approach, in particular, monetary analysis in Europe in the early 2000s. **Issing** admitted that this was a difficult question. After reviewing the economic booms in Spanish real estate, he stated that the ECB at the time had had no instrument except to urge politicians to act, but the imbalance had been obvious. He suggested that taking appropriate measures against financial imbalances was ensured only by central banks' proper attitude and confidence.

V. Paper Presentation Sessions

A. Macroeconomic Implications of Demographic Changes: A Global Perspective[6]

Ronald D. Lee (University of California at Berkeley) suggested double-edged outcomes of population aging: the rising share of the dependent elderly could reduce consumption and per capita income growth, while lower fertility and slower labor force growth might raise productivity and economic growth via increased human capital. He illustrated the consumption and income profile over people's lives to point out the

6. For details, see Lee (2012) and Lee and Mason (2011).

two stark differences between high-income and low-income countries: in advanced economies, people tended to consume more during (1) their teenage years for educational purposes and (2) their years after retirement primarily for medical expenses, compared to low-income countries. These relatively high rates of consumption were funded primarily by public expenditure rather than private savings and familial transfers. Against this backdrop, he warned that a falling support ratio[7] resulting from population aging would increase the burden on workers and could undermine per capita consumption over time, given that the other conditions were constant. As a potential prescription for population aging, he suggested that supporting human and physical capital accumulation would be possible and desirable to offset the falling support ratios. To this end, the public transfer system should be carefully designed in line with the private sector's incentives toward an increase in human capital and assets. Otherwise, population aging could give rise to an unfavorable increase in the transfer burden on workers.

The discussant, **Naohiro Ogawa** (Nihon University), focused on the case of Japan. He showed how, over time, the elderly had increasingly relied on public transfers and asset reallocations to finance their increased consumption since the mid-1980s. He underscored the fact that, in the aggregate, Japanese people of early retirement age were providing transfers privately while receiving public transfers. With the empirical facts in place, he proposed three strategies for Japan to counter its population aging. First, he suggested that Japanese people could work more, which would raise per capita income. The second option would be to change the demographic dividend, which basically meant encouraging asset accumulation. Third, he concluded by calling for upgrading human capital, particularly in terms of financial education.

The session chair, **James B. Bullard** (Federal Reserve Bank of St. Louis), kicked off the open discussion by asking how one could assess the situation in which health care spending in the United States seemed to be spinning out of control. **Alan J. Auerbach** (University of California at Berkeley) posed a question as to the feasibility of the suggested changes, such as those for labor participation, retirement age, and pension benefits, to better cope with population aging because all the policies needed to overcome political processes. In a related vein, **Kiyohiko G. Nishimura** (BOJ) expressed his concern regarding the possible depletion of creative innovations under the ongoing population aging. **Ryuzo Miyao** (BOJ) pointed out that although older people accumulated assets in the form of safe assets, such as bank deposits, the assets did not seem to turn to physical capital accumulation in Japan.

B. Societal Aging: Implications for Fiscal Policy[8]

Auerbach derived the implications of population aging on fiscal policy. First, he demonstrated that most of the governments in advanced economies would have experienced a decrease in the primary surplus until 2060 using Auerbach (2011), and the primary cause of this fiscal gap would be an increase in health care and social security expenditure related to population aging. Moreover, he pointed out that the

7. The support ratio was the population-weighted sum of labor income divided by the population-weighted sum of consumption.
8. For details, see Auerbach (2012).

population aging would bring about a change in the composition of the government budgets and require tax system reform. The problem was that it was difficult to adjust the budgetary and tax system, although the impacts of these changes were basically predictable. In fact, governments and voters were often reluctant to reform the fiscal system to deal with the increasing medical and social security expenditure. He claimed that consumption tax would become efficient compared with the other taxes in an aging society, such as a labor income tax based on Auerbach and Kotlikoff (1987). However, tax system reform such as a rise in the consumption tax rate was often resisted by voters as well. Finally, he stated that the stabilization effect of countercyclical fiscal policy was ambiguous when population aging was in progress.

The first discussant, **Willem Heeringa** (De Nederlandsche Bank) pointed out that specifying the causes of population aging—a drop in the fertility rate or an increase in longevity—might be necessary since the optimal fiscal policy depended on them. In addition, he pointed out that the author's estimation of the fiscal gap might have underestimated the impact of the population aging, because the gap between the interest rate and the economic growth rate would be endogenous but the author's calculation was based on the constant growth rate and the real interest rate. The second discussant, **Selahattin İmrohoroğlu** (University of Southern California), in contrast, pointed out that the author's estimation of the fiscal gap in Japan was consistent with existing research, including his own paper, using different estimation methods. Moreover, he suggested the use of a general equilibrium model to analyze how the optimal fiscal policy coped with aging.

From the floor, **Kohn** pointed out the possibility that the fiscal stress could reduce the room to utilize the fiscal policy for the macroeconomic stabilization, as European countries recently were experiencing a similar situation due to the European sovereign debt crisis. **Shirakawa** mentioned that a decline in the rate of natural interest due to population aging mattered under the zero bound of the nominal interest rate. While **Bullard** emphasized the uncertainty of the fiscal projection in such a long period, **Lee** pointed out that even a projection with stochastic factors would often converge into a relatively narrow range as the uncertainty in various factors mutually canceled out. **Yukinobu Kitamura** (Hitotsubashi University) mentioned the difficulty regarding the consistent reform of taxes and social security in Japan.

C. Demographics, Redistribution, and Optimal Inflation[9]

Christopher J. Waller (Federal Reserve Bank of St. Louis) investigated the interaction between demographics and the optimal rate of inflation in light of the redistribution across generations. He argued that young cohorts preferred low real interest rates, high wages, and high inflation rates because they did not initially have any assets and wages were their main source of income, but old cohorts preferred the opposite. In an economy where the real return of money was equal to that of capital, he noted that a government could achieve the constrained efficient competitive equilibrium, which was the efficient allocation in the absence of the intergenerational lump-sum transfers, by using inflation rates as a redistributive policy. He showed by a quantitative simulation that

9. For details, see Bullard, Garriga, and Waller (2012).

aging population structures such as those in Japan might be optimally associated with the lower inflation.

The first discussant, **Hiroshi Fujiki** (BOJ) pointed out the fact that old people voted more often, owned more stocks, and had less of a bequest motive in Japan, and argued that such evidence supported the paper's argument. As potential extensions, he suggested considering the effects via public expenditure and capital outflow from aging countries as well as the slowdown in human capital accumulation of young workers through on-the-job training. Finally, he stated that the BOJ had a clear price stability goal that countered the possible deflation biases of older generations. The second discussant, **Philipp Hartmann** (ECB) stressed the importance of looking closely at the correlation between inflation rates and youthfulness across countries after controlling for other factors, pointing out that their correlation was negative in some European countries in contrast to the United States and Japan. In terms of the policy implications, he argued that fiscal policy rather than monetary policy seemed suitable as a policy tool for intergenerational redistribution because monetary policy had just one policy instrument, the policy rate, and central banks were independent entities with a clear policy objective of price stability.

From the floor, **Maurice Obstfeld** (University of California at Berkeley) suggested testing the presumption that the young preferred high wages and the old preferred high returns on wealth by using cross-country data. He also stated that the model needed more development in terms of the role of monetary policy, because monetary policy played no role in determining inflation rates in an economy where capital and money had the same real return. **Wellink** commented that looking at the consumption pattern over the age cohort was a simple approach to extend the research in this area. Since the consumption pattern of the old cohort differed from that of the young cohort, it could give us isolated effects of the aging. **Nishimura** asked how the result would change if the author assumed the money in a utility function or in a production function.

D. Monetary Policy and the Demographic Transition[10]

Andrea Ferrero (Federal Reserve Bank of New York) presented a life-cycle model with nominal rigidities to explore the effect of demographic changes on the economy and the implication for monetary policy, and showed that the increase in life expectancy put downward pressure on the real interest rate. He described how if life expectancy increased, the aggregate consumption would decrease and the aggregate investment would rise. In this framework, a monetary policy rule that fully stabilized inflation also closed the output gap. Such a policy implied that the nominal interest rate equaled the efficient real interest rate at each point in time. In contrast, standard policy rules that responded to inflation and the output gap might only generate deflation in equilibrium by not internalizing the effects of the demographic transition on monetary policy. He discussed the welfare costs of the demographic transition and those arising from the use of the suboptimal policy and added that policies dealing directly with the increase in the life expectancy, such as extending the retirement age, could substantially improve welfare.

10. For details, see Carvalho and Ferrero (2012).

The first discussant, **Piti Disyatat** (Bank of Thailand), pointed out that it was quite difficult to estimate the real interest rate in reality, and implementing zero inflation targeting policy was not realistic. He also mentioned that it was a little unusual that the increased longevity decreased welfare in the model. The second discussant, **John Sequeira** (Monetary Authority of Singapore), argued that the effect of the demographic transition differed according to the stage of the transition; the demographic dividend meant that populations supported by more workers produced and saved more. And on the contrary, the demographic burden occurred when populations with more retirees and a high dependency ratio saved less and consumed more.

From the floor, **Auerbach** argued that the model lacked a mechanism for increasing welfare as a result of increases in population, and the way of aggregating individual utilities to construct the social welfare function was misleading. In addition, especially when the extension of the retirement age was considered, the labor supply decision should be endogenized. In a related vein, **Bullard** proposed interpreting an increase in life expectancy as a decrease in the fraction of the working period in the entire life, so that the agents in the model disliked such a change. **Obstfeld** suggested that the framework presented in the paper could also be applied to the discussion of global imbalances and the financial crisis, when global interest rates decreased because of increases in saving rates in emerging countries, even though the Fed did not realize it. **İmrohoroğlu** noted that the subjective and objective survival rates appeared equivalent in the U.S. micro data. He also questioned what happened if public pensions were introduced into the model. **Iskandar Simorangkir** (Bank Indonesia) argued that the time horizons differed for monetary policy and demographic changes. He also claimed that the effect of demographic changes was already incorporated into the output gap.

E. Aging and Household Stockholdings: Evidence from Japanese Household Survey Data[11]

Naohisa Hirakata (BOJ) investigated the relationship between aging and household stockholdings using Japanese household survey data and reported two main findings. First, the participation rate was weakly correlated with age given other variables, such as financial wealth and incomes of households. The conditional share, which was a share of stocks in total financial assets of stock-owning households, was positively correlated with age given the other variables. Hence, the conditional share should increase as aging proceeded, although it should be noted that declining income and financial assets would clearly affect the projections of participation and conditional share. Second, he indicated that the stock market participation of younger households had risen due to the prevalence of inexpensive online stock trading after the early 2000s and this might lead to a future increase in the stock market participation of older households.

The discussant, **Előd Takáts** (Bank for International Settlements), pointed out that the coefficients on the dummy variables for age groups in the share equation did not seem to differ significantly from one another while they were different from zero and that this was worth further investigation. He also pointed out that the paper included

11. For details, see Fujiki, Hirakata, and Shioji (2012).

two related topics which should be considered in different papers. One was about aging and stockholdings and the other was about drivers of stockholdings and policy options, and they needed a bit more elaboration.

From the floor, **Goodfriend** asked why the authors cared about households' stockholdings. **Auerbach** inquired whether the data used in the analysis could identify the effect of indirect stock holdings such as mutual funds in addition to that of the direct stockholdings. He also pointed out that the age effects mentioned in the paper could be generational effects, because the authors could not separate generational effects and trends from the cross-sectional data. **Lee** also wondered why the authors were concerned about the total demand for stockholdings, which was a scale effect as the population declined. He stated that as the population declined, the demand for capital on the part of Japanese industry would be decreasing and that the labor force would be declining and the whole economy would be scaling down.

VI. Policy Panel Discussion

In the panel discussion moderated by **Nishimura**, **Kohn**, **Obstfeld**, **Glenn Stevens** (Reserve Bank of Australia), and **Wellink** presented their views on the global supply and allocation of capital, followed by a general discussion from the floor.

Nishimura, the moderator, began the panel by stating three stylized facts from a national and global perspective: the time lag in the tide of global aging; the coincidence of financial crisis and demographic change; and the limit of forecasting ability with respect to fertility and longevity as exemplified in the Japanese experience.

A. Panelist Speeches

Kohn summarized two central characteristics of global capital supply over the last 10–15 years. First, the global supply of savings was much greater than the global demand for investment, leading to consistently low real interest rates. Second, there were large imbalances in global financial flows. He argued that the risk of a financial crisis caused by a sudden halt to capital flows depended upon whether or not these capital flows were based on fundamentals, but he suspected that the flows were driven largely by policies misjudged by the public sectors and misperceptions by private sectors. In the United States, the primary culprits were an unsustainable fiscal policy, over-leverage in the household sector, misperception of risk by investors, and a mismatch in the maturity of assets and liabilities. In the surplus countries, the absence of social security and the lack of exchange rate flexibility in developing countries was an important driver of capital flows in the form of savings. Surplus countries should pursue domestic policy by stimulating domestic demand to counterbalance the decline in U.S. consumption that had occurred since the onset of the financial crisis. The U.S. monetary policy should focus on domestic objectives such as returning to full employment, and the surplus countries should refrain from intervening in the flow of international capital as the macroeconomic adjustment proceeded. To address concerns about the spillover effects of easy money from deficit countries, surplus countries should rely instead on financial system regulation.

Obstfeld's discussion[12] centered on the continuing importance of current accounts that captured potential macro and financial stresses. Large current account imbalances might indeed be problematic and deserved scrutiny by policymakers. However, he also argued that the current account, which was a net flow of assets against goods, was not all that mattered and the gross two-way asset flows that accompanied international trade in goods were also important. He suggested that only the structure of gross cross-border claims revealed financial stability. In addition, importance should be attached to the fact that changes in asset prices were increasingly swamping the effect of financial flows, described in the current account, on countries' financial positions. A better picture of a country's financial position vis-à-vis the rest of the world was provided by the net international investment position (NIIP), which included capital gains and losses in addition to financial flows. The NIIP should also be closely monitored so that destabilizing, large gross flows were not overlooked by focusing on the current account. He suggested that reforms on the global financial system should focus on liquidity arrangements, regulation, resolution, the informational infrastructure, and general global governance.

Stevens suggested that although he believed demographic changes to be an important factor in the international flow of capital, measuring the size of such effects faced practical difficulties. First, since countries tended to age at the same rate, the historical trend of capital flows was unlikely to be informative about the impact of demographic changes. Furthermore, the long-term effects of demographic changes on capital flows were likely to be drowned out by short-term fluctuations, such as changes in risk appetite and financial innovation. Next, he related the experience 25 years ago of Australia's attempts to reverse a persistent current account deficit through structural reforms. The effects of these reforms were short-lived, as the private sector simply undid the changes brought about by the reforms and the current account soon returned to a deficit. He concluded that what was important was not where capital came from, but rather how it was used. The current account could be a useful gauge of financial stability, but it should not be thought of as a measure of economic health. He repeated that what really mattered was the nature of risk taking and leverage in the domestic country, rather than whether funding was predominantly local or offshore.

Wellink began his remarks with a discussion of increased longevity made possible by medical advances to highlight the growing importance of understanding the macroeconomic implications of demographic changes. He then proceeded to document the increasing frequency of banking crises and the enormous damage that they could cause. He conjectured that the increased frequency of crises in recent years might have been caused by three factors: globalization, by introducing developments that were outside of the control of national governments; deregulation, by making economic behavior of financial institutions less predictable; and financial innovation, which required a period of "learning-by-doing" for regulators. He cited early studies that concluded demographics could cause global capital flows to explode and suggested that this presented a strong case for governments to concentrate on reducing current account deficits. His most serious concern was the fiscal position of many countries, including Japan,

12. For details, see Obstfeld (2012).

rather than demographic change. The fiscal adjustment required simply to stabilize debt levels was of a formidable magnitude, and people should be aware that inflation was not a solution.

B. General Discussions

Goodfriend began by asking about the nature of the large underlying gross capital flows that concerned **Obstfeld**. **Obstfeld** explained that most of the flows comprised debt and were often used to take advantage of regulatory arbitrage. **Issing** argued that his primary concern for the euro area was the persistent inflation differential between Germany and the peripheral countries. He insisted that a reversal of this differential should take place as an automatic process of macroeconomic adjustment and should not be forced by governments through misguided policy. In particular, he rejected the proposal that Germany should undertake a policy of fiscal expansion simply to help other countries; this would only harm Germany without bringing any benefit to its trading partners. The appropriate path of rebalancing inflation differentials remained a natural economic adjustment centered on a nominal anchor in the form of a policy of price stability. **Obstfeld** agreed with **Issing** that calls for Germany to pursue policies designed to reduce its competitiveness were misguided. **Wellink**, too, agreed with **Issing**'s skepticism over German fiscal expansion, but added that imbalances within a monetary union were not naturally resolved. **Kohn** raised the point that without greater flexibility of labor and product markets it was impossible for the inflation differential to be reversed. Such a long process of structural adjustment required help from the center.

On current account, **Shirakawa** agreed that gross value rather than net value should be paid attention to and that the current account imbalances should be looked at from a financial stability rather than traditional macro sense. He raised the point that the role of global reserve currency continues to fall on the U.S. dollar in the absence of alternative candidates. Given this situation, he asked, taking spillover and feedback of monetary policy into consideration, what was the Fed's appropriate policy? **Kohn** responded that the reserve currency status of the dollar did not impose limitations on the policy options of the Fed. Although its reserve status might indeed drive the exchange rate of the dollar higher, this did not require the United States to maintain a high level of unemployment. In other words, the Triffin dilemma did not apply because the necessary adjustment could take place through the exchange rate and the dollar's reserve status in no way impeded this adjustment. **Shirakawa** added that the failure of policy to tackle demographic changes was a serious problem. In particular, deteriorating fiscal positions combined with changes in voting behavior could lead to policies that impeded economic growth. **Wellink** reiterated that while demographic changes were a point of concern, particularly in the long run, the sovereign debt levels in Japan and the United States presented far more immediate challenges. While Europe's painful fiscal consolidation had been almost sufficient to stabilize the debt-to-GDP ratios of the highly indebted countries, Japan's demographic changes were simply aggravating the country's fiscal difficulties. Furthermore, loose monetary policy had reduced pressure on the public sector to reduce its debt and put Japan in a perilous position.

Masao Ogaki (Keio University) suggested that exploiting the research results of experimental economics to promote altruism could help to weaken the intergenerational

conflict which lay at the heart of the fiscal debate in aging societies, while **Auerbach** inquired about the types of institutions that could be effective in realizing the long-term structural reforms required by demographic changes. **Stevens** responded that of primary importance was an honest accounting with the public over the extent of the challenges and the trade-offs available. Unfortunately, the political process made such a frank discussion difficult.

Finally, **Goodfriend** distilled what he believed to be the key underlying issue of the conference: the aging of society was creating enormous pressure to move wealth from the present into the future. But the basic problem remained that there was no way for central banks to accomplish this in an appropriate manner. Central banks should explain that public insistence to the contrary would only stoke inflation.

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APPENDIX 1: PROGRAM

Wednesday, May 30, 2012

Morning

Opening Session

Chairperson:	**Tomoo Yoshida**, Bank of Japan
Opening Remarks:	**Masaaki Shirakawa**, Bank of Japan
Keynote Speech:	**Marvin Goodfriend**, Carnegie Mellon University

Session 1: Macroeconomic Implications of Demographic Changes: A Global Perspective

Chairperson:	**James B. Bullard**, Federal Reserve Bank of St. Louis
Paper Presenter:	**Ronald D. Lee**, University of California at Berkeley
Discussant:	**Naohiro Ogawa**, Nihon University

Session 2: Societal Aging: Implications for Fiscal Policy

Chairperson:	**Pierre Jaillet**, Banque de France
Paper Presenter:	**Alan J. Auerbach**, University of California at Berkeley
Discussants:	**Willem Heeringa**, De Nederlandsche Bank
	Selahattin İmrohoroğlu, University of Southern California

Afternoon

Mayekawa Lecture: Central Banks—Paradise Lost

Chairperson:	**Charles I. Plosser**, Federal Reserve Bank of Philadelphia
Lecturer:	**Otmar Issing**, Goethe University Frankfurt

Session 3: Demographics, Redistribution, and Optimal Inflation

Chairperson:	**Hiroshi Nakaso**, Bank of Japan
Paper Presenter:	**Christopher J. Waller**, Federal Reserve Bank of St. Louis
Discussants:	**Hiroshi Fujiki**, Bank of Japan
	Philipp Hartmann, European Central Bank

Session 4: Monetary Policy and the Demographic Transition

Chairperson:	**Pierre St-Amant**, Bank of Canada
Paper Presenter:	**Andrea Ferrero**, Federal Reserve Bank of New York
Discussants:	**Piti Disyatat**, Bank of Thailand
	John Sequeira, Monetary Authority of Singapore

Thursday, May 31, 2012

Morning

Session 5: Aging and Household Stockholdings: Evidence from Japanese Household Survey Data

Chairperson:	**Ryuzo Miyao**, Bank of Japan
Paper Presenter:	**Naohisa Hirakata**, Bank of Japan
Discussant:	**Előd Takáts**, Bank for International Settlements

Policy Panel Discussion

Moderator:	**Kiyohiko G. Nishimura**, Bank of Japan
Panelists:	**Donald L. Kohn**, The Brookings Institution
	Maurice Obstfeld, University of California at Berkeley
	Glenn Stevens, Reserve Bank of Australia
	Nout Wellink, De Nederlandsche Bank (formerly)

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