

# JAPAN ECONOMIC CURRENTS

A COMMENTARY ON ECONOMIC AND BUSINESS TRENDS

## A Future Society Created by Nanotechnology

by Makoto Watanabe, Keidanren

In February 2000, President Clinton made the stunning announcement that the US would massively increase Federal spending on nanotechnology – from \$270 million to \$495 million, an 83 percent boost. According to Clinton, the new National Nanotechnology Initiative (NNI) would “solidify the technological base that lies at the heart of America’s scientific and economic leadership.”

Nanotechnology is having a tremendous impact – these memory chips, no bigger than sugar cube, can contain all the information stored in the Diet’s library, are lighter than steel but made of material ten times stronger, and capable of rendering a computer’s calculation speed several million times faster.

The US’s bold and focused investment effort, backed by Presidential resolve, shocked nanotechnology-related parties in Japan, which had pioneered high-tech nanotechnology research. Early Japanese initiatives included the 1985 “nanomechanism project,” the 1991 discovery of the carbon nanotube by Dr. Sumio Iijima, and advances in atom technology in 1992 – all in conjunction with technological development at the nano-level in the fields of electronic devices and materials.

Clinton’s announcement provoked a sense of crisis for all Japanese involved in the field; should the US push ahead with nanotechnology as a national strategy, Japan’s achievements to date would be overwhelmed at once.

Given these circumstances, in 2001, under Prime Minister Mori’s administration, the government designated “nanotechnology/-materials” as one of the most important areas to be addressed in its five-year “Science and Technology Basic Plan,” policy blueprint. Led by a governmental organization, the Council for Science and Technology Policy, efforts were made to best allocate resources to improving Japan’s scientific base, including a pro-

motional strategy targeted at nanotechnology.

Other Japanese government ministries are also actively involved in the promotion and practical application of R&D for nanotechnology. The Ministry of Economy, Trade and Industry (METI) is responsible for technological development of next generation semiconductors, nanotechnology materials. The Ministry of Education, Science and Technology is responsible for the promotion of basic research in the field by Japanese nanoresearch facilities and nanoresearch support projects.

On a parallel track, in June 2000, Keidanren (Japan’s Federation of Economic Organizations) established a nanotechnology-dedicated task force under its Industrial Technology Committee. One month later, it published a policy proposal, “Nanotechnology Opens the Way to the 21st Century,” which argued the importance of nanotechnology.

Following that, Keidanren committees thoroughly reviewed nanotechnology involved in the IT field, materials, measurement, and processing. In March 2001, it released its report, “The Future Society to be Created by Nano-

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## A Future Society Created by Nanotechnology

technology – n-plan 21-,” a strategy for nanotechnology from the viewpoint of industry. The report made several key recommendations:

- **Practical applications for nanotechnology**

Beyond basic R&D in nanotechnology, efforts should be made to apply advances in ways that improve Japanese industry and society. To achieve this goal,

- a) Focused investment should be made in those areas that will have the greatest impact upon industry and the society. The objective is using nanotechnology to make breakthroughs in the fields of IT, biotechnology, the environment, and materials.
- b) Second, the results of R&D should be provided to industry and the society in a timely manner. For its most efficient industrial and commercial applications some five to 10 years in the future, objectives should be clear, with resources provided in a concentrated manner. Commercialization and practical application should be promoted by the establishment of flagship-type projects. That said, it is very important to promote both advanced basic research and daring projects that challenge

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innovation and fundamental technology development, with a vision of the future going beyond 10 years.

- **Flagship nanotechnology projects should focus on IT:**

It is generally assumed that flagship-type projects for nanotechnology actually in use within five to 10 years will be in the IT field. In the government’s 2001 “e-Japan” plan, it envisions that within five years Japan will become the global leader in the IT field. In configuring a Ubiquitous Network society – in which information is accessible wherever and by whomever – devices requiring low electricity and high performance are indispensable. The key to realizing this goal is nanotechnology. Indeed, the US’s NNI report said that nanodevices is one area in which Japan has a technological advantage.

The development of new IT devices, using nanotechnology, should be aggressively pursued. The development of the next generation

semiconductor technology is one promising area. At present, the minimum line width for processing semiconductors is approximately 130 nano-meters. Within several years, that size is expected to drop below 100 nm, crashing into a formidable barrier. Severe competition is taking place globally in this field, so Japan needs to take up semiconductor technology as a flagship project and employ nanotechnology for commercial usage.

In addition, petabit per second class optical network device technologies and terabit per square inch class information storage technology will be made possible by nanotechnology.

- **Challenging projects should be adopted covering wide areas**

Nanotechnology can relate to a variety of fields. There is a need for the promotion of wide-ranging and challenging projects aimed at revolutionary technology development which looks ahead 10 years from now. The materials field is one

such example. Japan has accumulated world-class technical knowhow, as was manifested by the discovery of the carbon nanotube by Dr. Sumio Iijima.

Likewise, the possibilities for nanomaterials field are enormous. Such promising materials include super-lightweight, high tensile structured material; the creation of long-lived material; tremendously high performance solar and fuel cells; and biocompatible material that can be used as man-made bones. Based on the accumulated know-how in the materials field, the creation of new industries should be attempted through clarifying relations between materials' nanostructure and functions, such as the formation of nanocrystals, nano thin film, nano particles, and nano tubes.

Also important is research on bio-nanosystems, a fusion between

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biotechnology and nanotechnology which involves the detection, calibration, and analysis of trace quantities of biological materials with high precision, as well as research on nanosimulation, which are the foundations for nanotech-

nology. The United States and Europe are actively involved in these areas, but Japan should shore up its activities, primarily in the areas in which Japan excels.

Efforts in a variety of fields are already underway. The Japanese

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government is beefing up its activities, centered primarily around the materials areas.

It is also important to emphasize basic research in areas within nanotechnology that will produce innovation in the future, such as properties search, functional clarification, properties measurement, and theoretical

computation analysis. Molecular computers, on which molecules are given

information processing functions, and quantum computers, which can instantaneously process extremely difficult calculations, are dream technologies still in the pipeline. It is essential that basic research not be overlooked.

• **Nanotechnology should be promoted as a component of a national strategy**

Clearly, the Keidanren's dedicated focus on nanotechnology was prompted by President Clinton's announcement of NNI. Japan had

already done considerable work in the field but until then, it had decisively lacked a well-defined national strategy.

Fortunately, in January 2001, the Japanese government inaugurated the Council for Science and Technology Policy. Under the guidance of then-Cabinet Minister Omi, the Council has exercised a leadership role as the headquarters for science and technology policy. Based on a promotional strategy has been established for nanotechnology, METI and the Education, Science and Technology Ministry are providing policy support.

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# Developing New Opportunities in a Weak Japanese Economy: AFLAC Adapts to Change

by Charles D. Lake II, AFLAC Japan

The economic news from Japan has not been positive in recent time, which is no surprise to many. Numerous analyses point to the worsening business sentiment, declining corporate investment and rising unemployment rate. Consumers are increasingly cautious amid concerns over unemployment and the viability of social security programs like the national health care system. A gloomy summary of the Japanese economy may be nothing new to the readers of this journal.

What may be new and surprising, however, is that despite the state of the Japanese economy, one American company continues to find the Japanese market attractive and is optimistic about the business opportunities presented there. That company is AFLAC, a leading supplemental insurance provider operating in Japan.

There is no doubt that all companies operating in Japan, including AFLAC, are being challenged by the current state of the Japanese economy. In addition, AFLAC faced intensified competition and radical change in the business environment in 2001 caused by the regulatory reform program promoted under the Financial Big Bang plan. Nevertheless, the story of AFLAC is

an optimistic story, which should provide an interesting twist to the gloomy assessment of the Japanese economy.

## AFLAC's Competitive Advantages

Many observers of the Japanese business scene know AFLAC as a niche provider of insurance products in the so-called "third sector" of the Japanese insurance market, the second largest insurance market in the world. The third-sector products include insurance products such as cancer life, nursing care and medical insurance products that provide coverage for out-of-pocket medical or nursing care expenses paid by the consumers in contrast to the traditional life insurance products that provide death benefits.

Initially, the cancer life insurance product was the main product of AFLAC Japan since its establishment in Japan in 1974. But today, AFLAC Japan has diversified its product listing to include medical stand-alone, accident, nursing care, and certain ordinary life products, in addition to maintaining its strong presence in the cancer life market.

In 2001, AFLAC Japan's premium income was \$6.2 billion and net investment income was \$1.2 billion, bringing the total revenues earned in Japan \$7.5 billion. Since AFLAC Japan started its operations in Japan 28 years ago, it has been able to

continue its double-digit growth. For instance, the company's total assets have increased from just ¥0.5 billion in 1974 to ¥3,612 billion as of September 30, 2001. (See chart on page 5)

AFLAC products are offered to employees at 47,000 payroll accounts representing 95 percent of the companies listed on the Tokyo Stock Exchange. AFLAC's strong distribution network includes 52,000 licensed sales agents called associates, representing 2,950 affiliated and independent corporate agencies, 6,890 individual agencies, and the sales force of its strategic alliance partner, the Dai-ichi Mutual Life Insurance Company.

Now AFLAC Japan insures one out of four households in Japan and is well known in Japan for having a strong company brand. For example, in a survey published by Shukan Diamond in March 2002, AFLAC Japan was selected as the number one company for product replacement by those surveyed. The company is also recognized for its financial soundness with its "AA" rating by Standard and Poor's and "A plus, Superior" rating by AM Best. Strong customer services is another hallmark of AFLAC. For example, after receiving claims documents

from its customers, AFLAC Japan paid benefits to policyholders at an average of 2.3 working days in 2001, which is believed to be among the quickest services provided in the Japanese insurance industry.

### Adapting to Changes in the Market Place

In the deregulated Japanese insurance market, only those companies that continue to adapt to changes and meet consumer demands will be victorious in the intensified competitive environment.

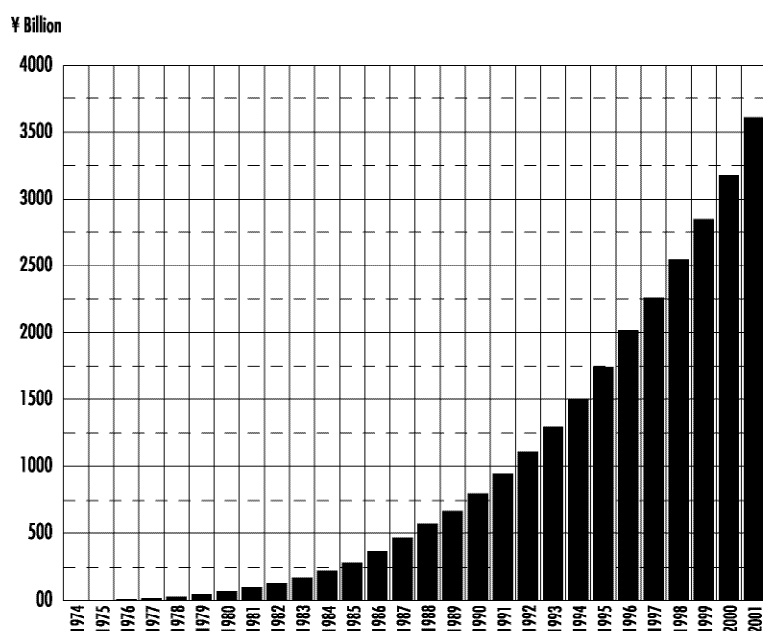
AFLAC Japan has implemented a major reform of its organizational structure, human resource system, and decision-making practices, which are designed to further strengthen its overall operational effectiveness.

Numerous management experts have noted that the core strength of the Japanese-style management was the so-called Japanese-style human resource system that promoted loyalty to the company through practices such as "life-time employment" and "seniority system."

However, according to a survey conducted in 2000 by the Japan Productivity Center for Socio-Economic Development, about 60 percent of the Japanese companies listed in the Tokyo stock exchange selected "seniority system" as one of the problem areas that needed to be addressed in their human resource management.

AFLAC Japan has traditionally localized its management style and operations where necessary. In the human resource area, the company incorporated certain Japanese features like the seniority-oriented promotions and has been successful in recruiting and retaining talented individuals over the years. However, the company made significant changes to this system in April 2002 with the introduction of a job-based pay system for employees in the management positions. This new job-based pay system does not take into consideration the seniority of our managers and defines base salary of each manager according to job descriptions, the level and scope of responsibility, and the difficulty in accomplishing assigned responsibilities. The changes will make our managers more accountable to execute their respective responsibilities.

**TOTAL ASSETS OF AFLAC JAPAN  
(IN THE JAPANESE FISCAL YEAR)**



All data are as of March 31 of each year excluding that of 2001, which is as of September 30 and the latest one available.

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## Developing New Opportunities in a Weak Japanese Economy: AFLAC Adapts to Change

These aggressive reform measures have been balanced with substantial employee support programs and long-standing practice of granting stock options widely. Today nearly half of the employees of AFLAC Japan have been granted stock options of its parent AFLAC Incorporated. Thus, AFLAC Japan probably has one of the most dedicated workforces in Japan because the employees work hard and link their future tightly with the future of the company.

The characteristics that make AFLAC the number one insurance company in Fortune magazine's listing of "The 100 Best Places to Work for in America" also makes AFLAC Japan one of the best places to work for in Japan as well.

### Seeking Excellence in Corporate Citizenship

AFLAC has also demonstrated its commitment to be a good corporate citizen in Japan like it has been in the United States. AFLAC Parents' House probably is the best example of such an effort. AFLAC Parents' House, located at Kameido in Tokyo, provides facilities for children with pediatric cancers or serious diseases and their families when they have to come to Tokyo to obtain medical treatment. In addition to providing accommodations, AFLAC Parents' House also gives those in need with

a variety of mental health support by making available trained counselors. More than 500 families have used the facility since its opening in February 2001.

AFLAC initiated support to build AFLAC Parents' House in 1999 in commemoration of the 25th anniversary of AFLAC Japan's establishment in Japan. The funding for the construction and the operation of the facility was obtained through generous donations by executives, employees, and agents, which raised more than ¥120 million for the facility.

Another effort in community support in Japan is a philanthropic program that provides scholarship to those Japanese high school students who have lost their parent to cancer, which is also supported by contributions made by employees of AFLAC and its sales associates. Through this program over 500 students have received a scholarship to finish school and to go on to college. AFLAC family members are very proud that the program funded by their donations has made a difference in the lives of many young Japanese students.

### Optimism for the Future

With Japanese consumers tightening their household spending budgets, like many other companies AFLAC is facing a significant

challenge in the Japanese market. Yet AFLAC Japan sees opportunities to further strengthen AFLAC's presence in the Japanese market. With dedicated and energized employees and sales associates, AFLAC Japan will continue to provide the best products for the best price in the Japanese supplemental insurance market. With the expected rise of co-payment for health care from 20 to 30 percent in 2003, the Japanese consumers will demand good private insurance products. In a level-playing field, Japanese consumers will respond to excellence in business whether the company is foreign or domestic.

AFLAC believes that the changing business environment in Japan is creating new opportunities and that the company retains distinctive competitive advantages that should help maintain its market leadership and significantly outsell its competitors. ■

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Charles D. Lake II is deputy president of AFLAC Japan. He joined AFLAC Japan in June 1999. Before joining AFLAC, Mr. Lake served as director of Japan Affairs and Special Counsel to the U.S. Trade Ambassador at the office of the U.S. Trade Representative (USTR) in the executive office of the president.

## Japan Business Dialogue

*KKC's monthly program featuring Japanese experts on the economy.*

### **"Evolution of Japan's Policy Towards Economic Integration in Asia"**

*Ms. Naoko Munakata*

After decades of focusing exclusively on expanding trade through the multilateral GATT and WTO forums, Japan just recently has begun to consider bilateral and regional arrangements, said Ms. Naoko Munakata, Visiting Fellow, at the Brookings Institution's Northeast Asian Policy Studies.

Addressing the March 14 Japan Business Dialogue, Munakata explained that regional frameworks have been evolving in Asia since the Plaza Accord. The first stage, from 1985-92, there were a series of competing and interacting proposals (the US-ASEAN free trade agreement, Asia-Pacific Economic Cooperation (APEC), East Asian Economic Cooperation (EAEC), etc.

The second stage, from 1993-97, saw the rise of APEC "voluntarism" (opt-in concessions) as character-

"[I]t is also crucial that Japan creates an "innovation-friendly" environment and opens up inefficient sectors to competition. In addition, it needs to build capacity to gain from Asia's economic dynamism."

ized by the APEC goals set forth in Bogor, Indonesia, and the Osaka action agenda.

The third stage, 1998-2000, was prompted by the 1997 Asian financial crisis, the failure of the Early Voluntary Sector Liberalization efforts within APEC, and the ASEAN Plus Three Summit. During these years, Japan changed its policy from exclusive dependence on WTO to multilayered policy where bilateral free trade agreements have complementary roles (it started to negotiate FTA with Singapore, and to consider FTAs with South Korea as well as with Mexico in this period).

The fourth and current stage, which began in 2001, will be notable for an increasingly active China.

WTO (WTO cannot stop regionalism in the world and its process is too slow to keep pace with rapid changes in economic environment) as well as the benefits of regional arrangements (flexibility of contents and partners and additional momentum for domestic reform).

Beyond trade, Japan is changing and must face tough challenges. The first is the need to recover economic confidence. Disposal of non-performing loans and stopping deflation are today's top agenda. These are crucial to recover health of financial institutions and confidence in overall economy, but are not sufficient to recover Japan's economic vitality. More fundamentally, Japan has to address the problem of erosion of Japanese corporate competitiveness and profitability. Therefore, it is also crucial that Japan creates an "innovation-friendly" environment and opens up inefficient sectors to competition. In addition, it needs to build capacity to gain from Asia's economic dynamism.

"...an integrated Asia would be in the US interest... Finally, integrated Asia will transform Japan into a more open economy and society and therefore a more trusted regional player, which is more valuable as an US ally."

Japan's willingness to add a regional focus, Munakata said, was prompted by recognizing the limitations of the

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As for the prospect of East Asian or APEC free trade agreement, Munakata predicted, they are not imminent. According to her, it is more probable that competitive bilateral agreements in and outside the region will be developed in parallel. Through their interaction, a regional-wide network as well as a sense of community could evolve over time.

In conclusion, Munakata emphasized, an integrated Asia would be in the US interest, regardless of its membership,

for three reasons. First, interdependence will reduce regional tension and US security burden. Secondly, Asian dynamism will help Japan recover its economic dynamism. Finally, integrated Asia will transform Japan into a more open economy and society and therefore a more trusted regional player, which is more valuable as an US ally. ■

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At long last, then, the system is in place. As part of a national strategy centered around the Council for Science and Technology Policy, there is a need for maximizing the effectiveness of individual researchers and demonstrating results that are readily apparent to industry and society.

To help its country achieve its dreams, Japanese industry as a whole intends to continue pursuing the rich opportunities by nurturing competitive enterprises involving nanotechnology. ■

Makoto Watanabe is Manager of Science and Technology Group, Keidanren.

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“Koizumi Reforms are Trapped in the Idiosyncratic Japanese Policy Process”

Mr. Tsuneo Watanabe,  
Fellow,  
Office of the Japan Chair,  
Center for Strategic &  
International Studies(CSIS)

Publisher, Keizai Koho Center

Director, Hideaki Tanaka  
kkc1@kkc-usa.org

1900 K Street NW  
Suite 1075

Washington D.C. 20006  
202 293-8430

[www.kkc.or.jp](http://www.kkc.or.jp)

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KKC fosters a deeper understanding of Japan's basic social structure. Furthermore, it conducts public affairs activities to improve the Japanese people's recognition of Japan's global role.

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