Columbia Business School
Center on Japanese Economy and Business

Navigating Global Challenges: AI, Innovation, Monetary Policy, and Trade

Top row, left to right: Fukunari Kimura, Alan Wm. Wolff, Bernard Hoekman, Tsutomu Watanabe

Bottom row, left to right: Patricia C. Mosser, Takatoshi Ito, Costis Maglaras, David E. Weinstein, Sheena S. Iyengar, Laura Alfaro

CJEB's Annual Tokyo Conference

Otemachi Financial City Conference Center, Tokyo, Japan

June 4, 2024

Welcoming Remarks

David E. Weinstein, Director of the Center on Japanese Economy and Business (CJEB) of Columbia Business School (CBS) and Carl S. Shoup Professor of the Japanese Economy at Columbia University, welcomed attendees to CJEB's 16th Annual Tokyo Conference held on June 4, 2024. This conference supports the Center's central mission of promoting knowledge of the Japanese economy and its business systems in domestic, East Asian, and global contexts and concludes CJEB's public activities for

the academic year. This year's conference was titled "Navigating Global Challenges: AI, Innovation, Monetary Policy, and Trade," and it was co-sponsored by the Development Bank of Japan Inc.

Professor Weinstein highlighted that CJEB's focus on the Japanese economy remains important as Japan continues to be one of the United States' greatest political allies and trading partners. He spoke on the past year, commenting on Japan's weak yen and sluggish economy, the U.S.-Japan-South Korea and the China-Japan-South Korea trilateral relationships, and ongoing geopolitical conflicts, among other developments.

David E. Weinstein

He briefly previewed the conference, introducing the key topics of the global implications of AI and other developing technologies, strategies for how Japanese business leaders could foster innovation and creativity, the evolution of monetary policy in the United States and Japan, and the future of our global trading systems.

Professor Weinstein thanked CJEB's core faculty, key advisors, CJEB Founder Professor Hugh Patrick, and the CJEB staff. Expressing special gratitude to CJEB's corporate and individual sponsors, he concluded by reaffirming CJEB's enduring commitment to promoting the understanding of Japan, its economy, and its business systems.

Keynote Speech: AI, Growth, and Productivity

Costis Maglaras, Dean and David and Lyn Silfen Professor of Business at CBS, began by acknowledging CJEB as a valued resource at the Business School since the Center's founding in 1986 under Professor Patrick and under its current leadership by Professor Weinstein. He also recognized the recent accomplishments of CJEB's directors, as Professor Weinstein was honored with the Order of the Rising Sun, Gold Rays with Neck Ribbon, and Professor Takatoshi Ito, Director of CJEB's Program on Public Pension and Sovereign Funds and Professor at the School of International and Public Affairs (SIPA) of Columbia University, received the Order of the Sacred Treasure, Gold Rays with Neck Ribbon.

Dean Maglaras discussed the beginnings of AI in the 1950s when computers with the ability to do human tasks using limited rule-based systems and budding machine learning (ML) systems were developed. The ML approach, which is used in modern AI, gives the computer examples to teach the relationship between inputs and outputs. This technology first went dormant until the introduction of the learning algorithm backpropagation in the 1980s, and then again until the invention of the graphical processing unit (GPU) in 1999. He noted how GPUs allowed for the explosion of AI due to faster computers and abundant data.

Costis Maglaras

Moving on to the exponential growth of AI technology investments, Dean Maglaras cited 2013 as a watershed point when AlexNet, an image classification model, allowed AI to recognize images better than any previous technology. He also highlighted that when the researchers moved from ML to neural networks, the venture capital industry started investing more. Dean Maglaras spoke on the exponential growth in computing power, commenting on 125 Years of Moore's Law, an observation that the number of transistors on a circuit will double every two years with only an incremental cost increase. He pointed out how, over the past 3 decades, computer chips have become 1 billion times more efficient, whereas cars, for example, have not yet become 10 times more efficient.

Dean Maglaras then discussed the energy implications of becoming more efficient in computations per kilowatt hour. Compared to 30 years ago, we can work 10 million times faster but only spend 100 times more on electricity.

Dean Maglaras summarized that we are training exponentially bigger artificial brains with exponentially bigger data on exponentially faster computers with incredible results, with potential productivity gains by using large language models in many fields, such as software engineering and call centers. Yet, reflecting on the fear of AI takeover, he highlighted our human advantage in using less power than a machine.

Dean Maglaras concluded with a look to the future, discussing areas of potential innovation such as optimizing business decisions, creating smaller AI models that can fit on phones for specific tasks, and using AI to transform robotics in Japan.

Presentation: How Japanese Business Leaders Can “Think Bigger”

Sheena S. Iyengar, S.T. Lee Professor of Business and Academic Director of the Innovation Hub at CBS, began by discussing the origins of the “Think Bigger” methodology, drawing on the principles of Shu Ha Ri. Illustrating where big ideas come from, Professor Iyengar used the example of Pablo Picasso, who combined influences from Matisse and African sculpture to innovate a new style of painting during a pivotal period when the advent of the camera had disrupted the art world and raised questions regarding its future.

Using the example of the car to illustrate the “Think Bigger” methodology, Professor Iyengar described Henry Ford’s process as he 1) Defined a problem—How do we build an affordable car? 2) Identified sub-questions on reducing costs, labor, and time 3) Answered these sub-questions by searching within his

field and outside of his field for ideas. He used his findings to create a combination that allowed for a car to be assembled within one-fourth of the time and at 15 percent of the original price.

Sheena S. Iyengar

Professor Iyengar then discussed the home entertainment industry to highlight the power of "outside the box" thinking. Looking at disrupters to home entertainment giant Blockbuster, she explained how competitor Hollywood Video stayed in the box through slight improvements to the Blockbuster model, such as offering new releases and giving more time to return the videos, while Redbox and Netflix went outside the box by using vending machines, mail shipping, and subscription payment, which were influenced by other fields.

Professor Iyengar explained that the mind creates big ideas with an inventory that allows information retrieval and makes combinations to solve a problem. Better problem-solving depends on how much information you have in your inventory system and how well you can organize it and retrieve it when you need it. She described how "Think Bigger" creates a deliberative process to make meaningful combinations, as seen in the Choice Map Template or Choice Mapper. It allows exploration of a main problem, sub-problems, and strategies, using the best practice within an industry while populating the rest with strategies from different industries and points in history. Taking one strategy per row on a 5x5 choice map could produce up to 3,125 potential solutions.

Professor Iyengar ended with a personal anecdote on how cross-industry collaboration helped solve various problems and introduce new innovations during the pandemic, with teams making 3-D printed masks for hospitals, developing a briefcase-sized ventilator, and transporting vaccines to remote areas in Africa. She also discussed how two of her students have started developing a generative AI version of the Choice Mapper to aid in faster problem-solving.

Fireside Chat on AI and Innovation

Professor Weinstein opened the fireside chat with Dean Maglaras and Professor Iyengar. Discussing how to prevent AI from surpassing human control, Dean Maglaras noted that while he acknowledges the potential concern, he believes collaboration between governments, companies, and academia is necessary to anticipate and address the risks, especially as AI becomes increasingly prevalent in certain areas. Professor Iyengar explained how cultural differences influence the adoption and consequences of technologies more generally. She noted that global technology could become a tool to facilitate and exacerbate any micro-culture within a culture or between cultures, predicting that AI will affect the globe, though culture may affect the rate at which individual countries adopt AI.

The speakers also discussed how AI-caused displacement and automation would affect the labor market. Dean Maglaras predicted that some jobs would become automated by 2030 for efficiency and cost-cutting but that we would largely see job augmentation over substitution. However, he noted the possibility that AI's rapid, disruptive changes could cause societal friction, potentially across generational divides. Professor Iyengar compared the potential disruption of AI to the development of the car industry, emphasizing that while some jobs have been lost since the advent of the computer and AI, more jobs would also be created for those who know and can use AI.

In considering the effects of emerging technologies on intergenerational change, especially in the face of an aging society, and how we could learn to use these technologies more effectively, Dean Maglaras suggested it is important to allow people to stay skilled in the workforce and stay functional once outside the workforce. Professor Iyengar shared her optimism regarding human adaptation, citing the quick integration of Zoom into workflows during the pandemic. Professor Weinstein also pointed out the decline in productivity and Japan's slow-growing economy despite technological advancements that have not changed our daily lives but have shifted job tasks and compensation.

From left to right: Sheena S. Iyengar, Costis Maglaras, David E. Weinstein

The speakers also commented on how to keep up with the speed of technological advances, especially for the older generation. Noting that even though society's adoption tends to follow a human time scale rather than a technological time scale, Dean Maglaras advised the audience to be curious, predicting the world would be dramatically different in 30 years. Professor Iyengar added that the growing interest in education and global awareness as people desire to stay relevant and connected makes her optimistic.

The session concluded with Dean Maglaras sharing his insights on how AI could be used to combat the spread of misinformation rather than contribute to it. He explained that researchers are working to address the 'hallucination problem'—the tendency of AI systems to generate or propagate false information. He mentioned techniques like watermarking AI-generated content and labeling responses with confidence levels to help users discern the reliability of the output. Dean Maglaras emphasized that addressing the challenge of misinformation is an important and ongoing area of focus for the AI research community.

Panel I: Evolving Monetary Policy in Japan and the United States

Takatoshi Ito

Professor Takatoshi Ito introduced the topic at hand and welcomed panelists Ryozo Himino, Deputy Governor of the Bank of Japan (BOJ); Patricia C. Mosser, Senior Research Scholar at SIPA; and Tsutomu Watanabe, Professor of Economics at the Graduate School of Economics of The University of Tokyo.

Professor Ito showed a U.S. graph with inflation rates rising sharply in 2021 and 2022, landing at around 3 percent in 2023, as well as data from Japan with the inflation rates up to about 4 percent in 2022, which came down below 3 percent and is still around 2 percent. Referencing a graph depicting the 10-year bond rate in the United States and Japan, Professor Ito explained two perspectives: 1) the interest rate difference caused yen depreciation, and 2) the interest rate must go up for the yen to appreciate.

Deputy Governor Himino began by explaining that the BOJ has recently returned to a conventional monetary policy framework of guiding short-term policy rates after having pioneered unconventional monetary policies. He shared insights from domestic and international use of unconventional instruments, such as forward guidance, quantitative easing (QE), negative interest rate policies, and yield curve control (YCC).

Ryozo Himino

Deputy Governor Himino then discussed the long-term effects of unconventional policies. He mentioned positives, like stimulating the economy, and negatives, like effects on resource allocation and productivity. In discussing transmission channels, Deputy Governor Himino suggested that if unconventional policy works by moving asset markets in a certain direction, then the implication of monetary easing will differ depending on the asset prices context in which the policy operates.

Deputy Governor Himino concluded by noting signs of changes in several aspects of the Japanese economy. If wages and prices rise gradually, companies may feel more freedom in setting prices, and a wide range of economic actors might be more likely to change their behavior, making progress easier.

Patricia C. Mosser

Professor Mosser noted that the Fed was slow to respond to COVID's effect, largely because it felt the supply shocks were transitory and monetary policy was aimed at employment, which they viewed as subpar. This lag in action resulted in high and quick inflation, exacerbated by the different paces of global recovery. She added that once the Fed decided to tighten the economy in 2022, the pace of rate hikes was fast.

Professor Mosser explained that the U.S. labor market remains strong despite the rapid tightening, due in part to healthy household balance sheets, savings, and rising wages. Even without a recession, core inflation dropped sharply in 2023 due to diminished supply chain disruptions and increased U.S. labor supply and productivity. Although inflation has fallen quickly in the U.S., she remained skeptical that inflation would continue to decline, citing near-term supply constraints and climate change events, among other issues.

Professor Mosser finished by stating that the Fed had started shrinking its balance sheet by rolling off U.S. Treasury assets and money market funds, moving its balances into higher-yielding short-term assets elsewhere. She predicted volatility may come when we do not expect it.

Tsutomu Watanabe

Professor Watanabe began his remarks by showing similarities and differences in inflation for Japan and the United States. The U.S. saw increases in inflation before Japan, and both countries had differing inflation rate peaks. Japan, though facing lower inflation rates, has been affected by supply shocks, as seen globally.

He expanded on how global supply shocks are causing inflation, explaining that the U.S. and European central banks started with a 2 percent inflation target before the pandemic and are struggling to return to the 2 percent target.

However, he noted that, in Japan, inflation was close to zero before the pandemic, with post-pandemic inflation occurring. Professor Watanabe added that the BOJ is using global supply shocks as it tries to avoid a return to near-zero inflation rates and attempts to achieve a 2 percent target, like the United States. The BOJ is taking an opportunistic approach, which he said has been challenging but is achievable. Professor Watanabe then pointed out many similarities between the current state of the Japanese economy and the early part of Abenomics, excluding the inflation increases and wage raises occurring recently.

During the panel discussion, speakers spoke about 2 percent inflation targeting in Japan and the United States, the role of relative price and price mechanisms, the use of Forex monetary policy to raise interest rates, market pricing, and long-term 10-year bond rate predictions. Professor Ito concluded the session by thanking the panelists for sharing their expertise and offering his reflections regarding the topics discussed.

From left to right: Tsutomu Watanabe, Patricia C. Mosser, Ryozo Himino, Takatoshi Ito

Panel II: The Future of the Global Trading System

Professor Weinstein introduced the topic of global trade and trade policy, welcoming experts Laura Alfaro, Warren Alpert Professor of Business Administration at Harvard Business School; Bernard Hoekman, Professor at the European University Institute; Fukunari Kimura, Senior Professor at Keio University; and Alan Wm. Wolff, Distinguished Visiting Fellow at the Peterson Institute for International Economics and Former Deputy Director-General of the World Trade Organization (WTO).

Professor Alfaro began by expressing her optimism regarding globalization. She pointed out that we are not seeing deglobalization yet but rather a reallocation of global supply chains. She analyzed market share changes in U.S. imports, highlighting gains by Vietnam, middle and high-income Asia, and NAFTA.

Laura Alfaro

She spoke on the U.S. energy transition, emphasizing upstream versus downstream export and import shifts, and discussed the circumvention of protectionist policies through FDI as a form of engagement. Noting the geopolitical factors, she suggested that China may find it difficult to emulate Japan's entry into the U.S. market with the caveat that FDI from China would bypass protectionist measures in the United States.

Professor Alfaro noted a shift in U.S. public opinion on trade, with 60 percent against trade due to perceptions of job loss and associations with China. She argued that unless

policymakers can disentangle these effects, it would be hard to see changes in the United States. Professor Alfaro ended by expressing concerns that working from home may diminish interest in cities and that the loss of learning in the United States is resulting in a generation that will rely on AI without understanding the math behind it.

Next, Professor Hoekman discussed policy dynamics and adverse trends, noting that there is a shift away from multilateral cooperation towards preferential agreements and data regulation. He highlighted the mix of factors in industrial policy, including greening the economy and national security, adding that global trade alert data shows an increase in notifications for essential security interests.

Bernard Hoekman

Professor Hoekman commented that the WTO is less equipped to address spillovers from domestic regulations—due in part to greater, more diverse membership. Countries are turning to preferential and plurilateral trade agreements due to the deadlock at the multilateral level. Arguing for more informed deliberation and peer review dialogue to address policy objectives, he suggested the need to identify areas for plurilateral agreement.

Professor Hoekman ended with suggestions to develop a mechanism to incorporate agreements that apply to a subset of WTO members so the like-minded can move forward, incorporating plurilateral agreements into the WTO and addressing concerns of developing countries through open mechanisms and technical assistance. He emphasized using specific trade concerns as a mechanism for discussion and deliberation on trade measures rather than relying solely on traditional enforcement mechanisms.

Fukunari Kimura

Professor Kimura highlighted policy models to respond to geopolitical tensions between the United States and China, including the tariff war. He highlighted that currently, there are potential benefits for third-party countries like Mexico and Vietnam, which could leverage continued U.S.-China tensions to increase trade with both countries. He added that the direct export control effects on trade may be limited due to neighboring products and other factors.

He discussed recent decreases in FDI in China, explaining that the potential reduction in such global economic activities is due in part to the effect that unclear or uncertain regulations and future policy risks in countries like the United States and China are having on the movements of the private sector.

Professor Kimura spoke on the importance of a rules-based trading regime in the global economy, particularly in the face of inconsistent industrial policies from major developed countries and continued geopolitical tensions, and he stressed the need for major economies to be consistent with trade norms

and WTO commitments. He emphasized the importance of reviving the WTO and promoting other multilateral initiatives in the region, such as the Multi-Party Interim Appeal Arbitration Agreement.

Alan Wm. Wolff

Ambassador Wolff started with an overview of how the 2016 U.S. election and subsequent policy changes affected the Global Trade Order, with trade increasingly affected by security interests and geopolitical tensions. He urged Japan to take a leadership role by working with like-minded countries to make progress in improving the multilateral trading system.

He noted that the leadership vacuum in the world trading system (WTO) created by a focus on self-centered policies in the U.S. has yet to be filled by China or collective leadership from mid-level economies, particularly Japan and the EU. Ambassador Wolff commented on how changes to the geopolitical landscape between 2016 and 2024, including an escalated U.S.-China rivalry and armed conflict in the Middle East and Europe, are creating a new normal for world trade. Ambassador Wolff noted that in spite of these challenges, world trade is increasing. He advocated for U.S.-China and greater international cooperation on global issues where common interests can be found, such as climate change, food security, pandemic preparedness, and the increasingly global digital economy, arguing for the need to find areas of cooperation and preserve—to the extent possible—an open, rules-based trading system. He suggested ways in which the United States and Japan could work more closely together for mutual benefit.

From left to right: Alan Wm. Wolff, Fukunari Kimura, Bernard Hoekman, Laura Alfaro, David E. Weinstein

During the panel discussion, speakers analyzed whether who wins the U.S. election matters and the potential differences between Biden and Trump's economic policies, China's recent membership in the WTO, whether it was wrong to share the benefits of world trade with countries whose political regimes use these benefits to build their military, and what it would take to create free trade, among other topics.

Closing Remarks

Professor Weinstein concluded the conference by thanking the audience for their participation and the speakers for sharing their illuminating perspectives. He also expressed CJEB's gratitude towards its corporate and individual sponsors, including the Development Bank of Japan, which co-sponsored the conference.