



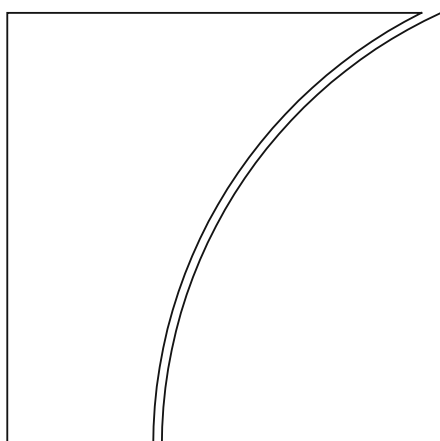
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No 162

Central banking in times of digitalisation and fragmentation

Monetary and Economic Department

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Foreword

The 24th BIS Annual Conference took place in Basel, Switzerland on 27 June 2025. The event brought together a distinguished group of central bank Governors, leading academics and former public officials to exchange views on the theme “Central banking in times of digitalisation and fragmentation”. The papers presented at the conference are released as BIS Working Papers, nos 1306 and 1307.

BIS Paper no 162 contains a speech by Agustín Carstens and remarks from two panel discussions, on “Perspectives on policymaking – a tribute to Agustín Carstens” and “Challenges for central banks in a changing world”.

Programme, 27 June 2025

- 09:00–09:05 Welcome** Hyun Song Shin, Bank for International Settlements
- 09:05–10:20 Session 1: Digitalisation and financial innovation**
- Chair Eli M Remolona Jr, Bangko Sentral ng Pilipinas
- Speaker Markus K Brunnermeier, Princeton University
- Discussants Maryam Farboodi, MIT Sloan School of Management
Christine Parlour, University of California, Berkeley, Haas School of Business
- 10:45–12:00 Session 2: Liquidity and central bank intervention**
- Chair Michele Bullock, Reserve Bank of Australia
- Speaker Raghuram Rajan, University of Chicago Booth School of Business
- Discussants Kristin J Forbes, MIT Sloan School of Management
Pierre-Olivier Gourinchas, International Monetary Fund
- 13:30–14:25 Keynote speech on fiscal and monetary policy interaction under high government debt**
- Chair John C Williams, Federal Reserve Bank of New York
- Speaker Carmen Reinhart, Harvard Kennedy School
- 14:25–15:40 Session 4: Perspectives on policymaking – a tribute to Agustín Carstens**
- Moderator Andréa M Maechler, Bank for International Settlements
- Panellists Roberto Campos Neto, former Governor of the Central Bank of Brazil
Jacob Frenkel, former Governor of the Bank of Israel; Group of Thirty
Timothy F Geithner, Warburg Pincus
Thomas J Jordan, former Chairman of the Swiss National Bank
Adam S Posen, Peterson Institute for International Economics
- 15:40–15:55 Speech by Agustín Carstens**
- 16:15–17:30 Session 5: Policy panel on challenges for central banks in a changing world**
- Moderator Agustín Carstens, Bank for International Settlements
- Panellists Rosanna Costa, Central Bank of Chile
Lesetja Kganyago, South African Reserve Bank
Christine Lagarde, European Central Bank
Chang Yong Rhee, Bank of Korea
Martin Schlegel, Swiss National Bank

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Panel on “Perspectives on policymaking – a tribute to Agustín Carstens”

Remarks by Roberto Campos Neto

Roberto Campos Neto, former Governor of the Central Bank of Brazil, and Vice Chairman and Global Head of Public Policy, Nubank

Innovation, trust and the future of finance: reflections on Agustín Carstens’ vision

It is a great honour to participate in the 24th BIS Annual Conference and on this panel, “Perspectives on policymaking – a tribute to Agustín Carstens”.

Agustín has long been a leading voice in international monetary policy, financial stability and innovation in the global financial system.

My remarks focus on his contribution to financial innovation. I will also share some reflections on recent technological advances, their implications for finance and how they connect to his work. As we will see, everything I mention has, in some way, been anticipated or discussed by Agustín.

Agustín’s contribution to financial innovation

Two of Agustín’s works are particularly relevant in discussing innovation.

The first, “Shaping the future of payments”,¹ describes how technological innovation is transforming the global payment landscape and why this should be a top priority for central banks. Agustín stresses that the foundation of money and payment systems is trust – something only central banks can guarantee. This places on them the duty to enhance safety and efficiency.

He also emphasises that payment systems should be transparent, fast, secure, low-cost and open.

When he published this paper, we were developing Pix, Brazil’s instant payment system. Those same principles shaped Pix’s design, and his work was a major inspiration for us. Today, Pix has over 890 million keys, 161 million users and 16 million companies. It has promoted financial inclusion for over 71 million people.

Agustín also called attention to the need to advance cross-border payments, an agenda that still demands further progress.

The second work is “Finternet: the financial system for the future”, co-authored with Nandan Nilekani.²

¹ A Carstens, “Shaping the future of payments”, *BIS Quarterly Review*, March 2020, pp 17–20.

² A Carstens and N Nilekani, “Finternet: the financial system for the future”, *BIS Working Papers*, no 1178, April 2024.

The paper outlines a modular, programmable, token-based financial system built on unified ledgers and interoperable protocols. Rather than replacing existing institutions, the Finternet seeks to interconnect them – just as the internet connects independent computing environments. It brings together programmable money, tokenised assets and digital identity, pointing to a future of seamless automation, interoperability and user empowerment.

Agustín discusses empowerment, competition, segmentation, tokenisation and ledger interaction, as well as scalability and privacy – concepts essential to understanding financial innovation today.

He also coined the term “commercial bank digital money”, a notion closely related to the concept of tokenised deposits and Drex, the Central Bank of Brazil’s initiative to advance tokenisation. This project directly reflects his conceptual framework.

Recent advances and implications for finance

The elements Agustín identified – trust, openness, interoperability and tokenisation – intersect deeply with current technological transformations.

In recent years, we have entered an era of accelerated innovation, particularly in artificial intelligence (AI). Enormous investments are flowing into the development of AI agents – systems capable of learning autonomously and updating their own parameters.

Technological progress appears to have surpassed Moore’s Law. The leap from Nvidia’s Ampere to Blackwell architectures illustrates this: inference performance has improved thirtyfold, while energy efficiency has increased by a factor of 25. Such advances were unimaginable only a few years ago.

The economics of AI are also changing. The cost of training models is soaring, the cost of inference is falling sharply, and the cost of governance – which should be rising – remains largely unknown due to the opacity of these systems.

Major financial institutions have become major investors in AI, following big tech in both scale and strategic focus. This will inevitably reshape financial intermediation, risk assessment and even supervision.

Another defining feature of this new era is the speed of adoption. No model could have predicted how quickly technologies now scale. Netflix took around 10 years to reach 100 million users; YouTube, more than four years; ChatGPT, two months. In its first two years, ChatGPT registered 365 billion annual searches, a milestone that took Google 11 years to reach.

This unprecedented speed has profound implications for finance, as innovation cycles shorten and user behaviour evolves faster than regulatory or institutional responses can adapt.

Crypto assets are another important dimension. The volume and price dynamics of bitcoin have grown exponentially. Some companies now hold bitcoin as part of their cash reserves. New leverage structures and digital platform banks are emerging, expanding the frontier of digital finance.

Regulatory frameworks are also evolving. The tokenisation of fund quotas is now authorised, and new forms of yield-bearing payment instruments are on the horizon – mirroring developments in other jurisdictions.

At the same time, fiscal imbalances and monetary mismanagement in several countries have raised inflation concerns. Elevated public debt and difficulties in restoring sustainability have far-reaching implications for the financial system.

We also observe taxes on capital flows, such as remittance levies, which further affect cross-border activity.

All these trends – AI, tokenisation, macroeconomic fragility and regulation – are deeply connected to Agustín's reflections on innovation and financial architecture.

Final remarks

Let me close by returning to scalability and privacy, two critical issues for the future of finance.

We must develop privacy-preserving and scalable solutions within the regulated financial system. If we fail to build secure and private payment infrastructures in this increasingly tokenised environment – as Agustín anticipated in the Finternet paper – the private sector will fill that space. And it already is.

We see it in Bitcoin's Lightning network and in second-layer solutions for stablecoins, whose adoption has been non-linear and rapid across multiple markets. This evolution suggests a growing reliance on second-layer architectures, which could significantly accelerate bank disintermediation.

As stablecoins and crypto adoption expand, individuals are moving funds out of banks and into digital wallets. But digital wallets do not extend credit – a fundamental function of banks. This shift, if unchecked, could reshape financial intermediation and liquidity creation in ways we are only beginning to understand. In markets where this process is more advanced, signs of financial disintermediation are already visible.

And again, this dynamic aligns precisely with Agustín's insight: the purpose of tokenised deposit systems is to avoid disintermediation by bringing innovation under the umbrella of trusted institutions.

Agustín has consistently illuminated the path towards a more innovative, inclusive and resilient financial system. His leadership – whether in highlighting trust as the foundation of money; in promoting transparency, speed, security, affordability and openness; or in outlining the Finternet's architecture – continues to guide central bankers and policymakers around the world. As we navigate this era of unprecedented technological acceleration, his ideas remain both relevant and indispensable.

It is our privilege – and responsibility – to build on the foundations he has laid, ensuring that innovation serves the public good while safeguarding the stability and trust of the financial system he has done so much to strengthen.

Remarks by Thomas J Jordan

Thomas J Jordan, former Chairman of the Swiss National Bank

It is a great honour for me to pay tribute to Agustín's achievements in just a few words. I am especially pleased to do so at this 24th BIS Annual Conference, on a panel with so many friends and former colleagues.

In my remarks, I would like to highlight several of Agustín's key contributions to strengthening the position of the BIS as a global platform for central bank cooperation.

Over the 15 years I have known Agustín, he served roughly half that time as Governor of the Bank of Mexico and the other half as General Manager of the BIS. I was impressed by his conviction in a stability-oriented monetary policy, his visionary ideas on the global financial system and his ability to implement major projects. It was always a pleasure working closely with him. Agustín is not only an outstanding central banker and public servant, but also a very likeable person. Talking with him over good food and wine about global economic and political issues is always a pleasure.

Already before his tenure as General Manager, Agustín had a significant influence on BIS work. He joined the BIS Board of Directors in January 2011. From 2013 to 2017, he chaired the Economic Consultative Committee and the Global Economy Meeting with intellectual brilliance, promoting a very productive exchange among the Governors.

In addition, Agustín regularly provided impetus that led to key initiatives at the BIS. I vividly recall a meeting he convened to address the problem of shrinking correspondent banking. That discussion made clear that this issue was not confined to Mexico or emerging market economies but extended to advanced economies as well. When correspondent banking falls short, international payments become costly, sluggish – and, in some cases, simply unworkable.

The conversation ultimately catalysed important workstreams at the Financial Stability Board and the Committee on Payments and Market Infrastructures and led to the development of the G20 Roadmap for Enhancing Cross-border Payments – a framework that has a broad impact on global efficiency and prosperity. The initiative also inspired important projects at the BIS Innovation Hub for the cross-border use of central bank digital currencies, including Project Jura, Project Agorá and many others. Building on Agustín's original discussion about the decline in correspondent banking, we are now exploring options to renew our international payment architecture by bringing together modern technology, common technical standards and compatible legal frameworks.

Also as General Manager, Agustín left many lasting marks on the BIS. A particularly important one was the launch of the BIS Innovation Hub in 2019, with the Swiss National Bank (SNB) as one of its three original founding centres. The Hub created an entirely new platform for central banks to work together on key areas of innovation. I am very proud that the SNB could support Agustín and the BIS in establishing this unique endeavour.

Another milestone, publicly less known but equally as important as the Innovation Hub, was the Innovation BIS 2025 strategy, launched right at the beginning of Agustín's term as General Manager. Under the motto "Shaping the Bank for tomorrow," this comprehensive programme included 40 workstreams and 10 focus areas, affecting all areas of the BIS.

The realignment of the BIS Banking Department was particularly important, given that banking activities form the financial backbone of the BIS. In its banking activities, the BIS competes with other central banks and private banks. The environment has become significantly more challenging in recent years. Technology in the banking sector has developed rapidly, the needs of central banks have evolved and the financial markets have remained volatile. Securing BIS income is therefore anything but guaranteed.

Innovation BIS 2025 significantly strengthened banking activities and revenues. Three points were decisive here: new products led to higher central bank deposits at the BIS; broader diversification of investments increased income and lowered risk; and the opening of a trading room in the BIS's Mexico Office enabled 24-hour operations. As Chairman of the Banking and Risk Management Committee, I saw for myself the enormous progress made. Overall, Innovation BIS 2025 significantly strengthened the institution's financial position and operational resilience. As a result, the important investments in new IT systems in the Banking Department have clearly paid off.

I also want to highlight Agustín's substantial contribution to positioning the BIS as a truly global institution for central bank cooperation. Since the mid-1990s, the composition of the BIS Board of Directors was gradually adapted from a mainly European body to a more diversified board that included more non-European Governors and Governors from major emerging market economies. However, Article 27 of the BIS Statutes prevented broader geographical representation because it guaranteed the European founding member states two board directors each. Changes to this "protected article" required approval not only from the board and the shareholders, but also from the governments of the six signatory states to the 1930 Hague Convention (the United Kingdom, France, Italy, Germany, Belgium and Switzerland).

In 2013, the board initiated a revision of Article 27. A committee, in which Agustín played a pivotal role, examined the issue and proposed new wording. The proposal was approved by the BIS Board of Directors and a General Meeting of the shareholders in 2016. By May 2017, the BIS was informed by the Swiss government that all governments of the six signatory states had approved the amendments – an outcome that was quite uncertain at the outset. The new Article 27 became effective in January 2019.

As a result, five European countries relinquished dual representation, and three new countries joined the BIS Board. With that, the balance of directors from European and non-European regions became more appropriate for a global institution, and the balance between directors from advanced and emerging market economies was also improved. At the same time, the number of directors was reduced from 21 to 18, which has further enhanced the functioning of the board. Changing Article 27 was a significant step in the institutional life of the BIS, one that Agustín helped shape with great conviction. The new Article 27 ensures that the governance of the BIS remains in sync with the evolution of global central bank cooperation.

Finally, I would like to highlight Agustín's deep ties to Switzerland. It was a real privilege to join him at many events across the country. He enjoyed wide respect across government, business, academia and the media. Especially important was his role in building a stronger engagement with the Swiss public through initiatives like the BIS's participation in Basel's Open House events, which not only fostered greater understanding of the BIS but also helped build trust and credibility.

His direct, personable approach was truly impressive – whether engaging with neighbours, local shop owners or the organisers of the Basel Fasnacht, Agustín always found an immediate personal connection. His ability to speak the local language and his down-to-earth demeanour were crucial in that respect. From a Swiss perspective, Agustín is widely regarded as a role model for representatives of international organisations. His departure from Switzerland is indeed a significant loss for our country.

Dear Agustín, thank you for your exceptional leadership, your tireless spirit of innovation and, above all, your friendship. I wish you and Catherine all the best in this new chapter of your lives.

Remarks by Adam S Posen

Adam S Posen, Peterson Institute for International Economics

Making an impact with technocratic virtue in today's political economy

One important aspect of Agustín Carstens' enormous positive impact throughout his public career was his commitment to public-facing communication and accountability. In every role – including notably at the BIS, which was not previously known for its public profile – Agustín took seriously this aspect of making monetary and financial policy for the general welfare. That benefited every institution he was part of and then led.

I think in many ways for the people in this room and the many of us who look up to him, Agustín was the central banker from central casting. He was almost a platonic ideal. As others have mentioned, he combined academic heft, professional ethics, confidence and calm without ego, and awareness of history and politics without being driven by them. These are the attributes we all would aspire to as economic public servants. But most of all, what I think Agustín exemplified was the ability to combine pragmatism and trustworthiness.

And this is the balance that somehow must be achieved to have sustainable, positive policy impact. Sometimes people going into central banking, or having been too long inside central banks, mistake inflexibility for credibility. There is a very profound paper by Drazen and Masson titled "Credibility of policies versus credibility of policymakers".³ It is all about the idea that a macroeconomic policymaker should not necessarily pursue the harshest or laxest policy at any given time, even if it seems possibly optimal, because beyond any one policy, you are also creating credibility for your regime, your ongoing work. That is something I think all central bankers are

³ A Drazen and P Masson, "Credibility of policies versus credibility of policymakers", *Quarterly Journal of Economics*, vol 109, no 3, pp 735–54, August 1994.

having to confront in this current situation of disinformation and polarisation following the Covid-19 period of inflation.

Within the BIS-convened meetings and most central bank conferences and committees, there's basically no question about people's motivations. Everybody wants to do the right thing, and there's even some sense of shared values and shared processes to get to what the right thing is. That is one of the most gratifying things about my experience on the Monetary Policy Committee of the Bank of England, to participate in such a common effort. For everybody who gets to do that, it's almost as satisfying as being at a think tank in terms of working with good motivation.

But more seriously, what is difficult to achieve is to get politicians, the general public, the media and markets to accept that the decisions central bank committees or finance ministries make are legitimate and well motivated. Almost nothing is ever strictly Pareto improving, except after a crisis has hit, and nothing is ever perceived as Pareto improving even then. There's always somebody who falsely or not believes that they are being mistreated. So, as I put it 30 years ago, declarations are not enough to assure support for operationally independent policymaking.⁴

Applied macroeconomists have spent a lot of time on institutions and processes, including central bank independence, exchange rate regimes and inflation targeting, but that is not sufficient to keep well-intentioned policymaking safe. A society cannot just set it up and forget it. It is sad that my warnings about the limited power of institutional fixes against politics are being demonstrated so amply in my own country at the moment, but I think it's important to recognise that reality.

So Agustín demonstrated four general lessons over his career about how to handle this political challenge of publicly navigating macroeconomic policymaking. First, policymakers must admit reality up front with factual backing. In one key theme, Agustín always spoke frankly about the differences between emerging markets and so-called advanced economies, and where those differences were likely to go away. And he was right. This was during times when people were either making political choices about which economies to consider (not just label) advanced or emerging or being dismissive of economic prospects for emerging markets because it was just too tough to have confidence. This is an example of how you talk about how you think about things can shift the reality – both in terms of what are deemed possible policies and how much space is available to pursue new policies.

Second, have your major policy goals ready and be ready to push them when the opportunity strikes. Do not assume, however, that on your first day in office you can go ahead with a list that you are going to be able to knock off. (This is true notwithstanding Agustín's successful internal action agenda on day one at the BIS). It is a question of being ready when the political moment is right, when things are ripe to take hold. We can think about Agustín's leadership at the International Monetary Fund, pushing over time for there to be facilities for non-reactive access to credit, pre-qualifying instead. This took time before it became reality, but thanks to Agustín it did become opportunity when time was ripe. Of course, we have seen a

⁴ A Posen, "Declarations are not enough: financial sector sources of central bank independence", in B Bernanke and J Rotemberg (eds), *NBER Macroeconomics Annual 1995*, vol 10, MIT Press, January 1996.

similar dynamic in Agustín's early championing of the work on central bank digital currencies (CBDCs), both at the BIS and among the participating central banks.

Third, speak as plainly and as simply as you can, but no simpler. So a policymaker can normally speak much more simply in public than they do in these and similar rooms in the central banking community – but you cannot allow yourself to speak as simply as the worst politicians do. Making that judgment about communications, that discipline of forcing yourself to be clear, but not allowing yourself to pander, is a key part of the leadership role. I'm proud that in the 2015 Niarchos Foundation Lecture at the Peterson Institute for International Economics (PIIE),⁵ as well as in a more recent on the record conversation we had at PIIE in 2021 about CBDCs,⁶ Agustín demonstrated exactly what is needed to do that.

Finally, and this goes to something others have mentioned that I think is critically important, monetary policymakers should engage with fiscal authorities in the spirit of sympathy but not assistance. That is an important distinction. For too long central banks felt that they could not give the impression of even cooperating with fiscal authorities because that would be a sacrifice of credibility. This was particularly true during the euro crisis, as I argued for voluntary cooperation at the time.⁷ Again, back to the credibility of policymakers versus the credibility of policies. The point is not to be an adolescent, and say, well, I'm independent, therefore I don't ever have to do what you ask.

That is counterproductive, and Agustín knew that from his days as the Mexican finance minister. There he was, passing four federal budgets in Mexico, in a minority government, without either getting into conflict with the central bank or diminishing its perceived independence, which is extraordinary. But the fact is that being sympathetic as a central banker does not require you to be empathetic. It doesn't mean you need to help the fiscal authority, certainly not politically – you just need to be willing to do so when policy is justified.

I believe that future central bankers and macroeconomic policymakers who follow these four guidelines in spirit, particularly in your public-facing role, can do a lot of good as Agustín Carstens demonstrated.

⁵ A Carstens, "Challenges for emerging economies' central banks in the face of quantitative easing in advanced economies", PIIE, 20 April 2015.

⁶ PIIE, "Discussion with Agustín Carstens on central bank digital currencies", 31 March 2021.

⁷ A Posen, "When central banks buy bonds – independence and the power to say no", comments at Barclays Capital 14th Annual Global Inflation-Linked Conference, New York, 14 June 2010.

Speech by Agustín Carstens⁸

Dear colleagues

Let me firstly thank the members of the last panel – Tim, Roberto, Jacob, Adam and, of course, Andréa – for their kind words. Compliments are always welcome, but those from such eminent colleagues and good friends are especially meaningful.

Let me also thank the other speakers and discussants today. You have given us much food for thought. My central bank colleagues and I truly value the opportunity this conference provides to have a frank and open dialogue with distinguished thinkers about issues that lie at the intersection of research and contemporary policy debates. You have not disappointed us.

As you are now aware, my term as BIS General Manager comes to a close at the end of this month. As this is one of the last times I will have the chance to address an audience like you in this capacity, I thought I might take the liberty of sharing a few personal reflections on my 45-year career, as well as some thoughts on issues that I believe will warrant the attention of academics and policymakers in the years to come.

I started my central banking career on the foreign exchange desk at the Bank of Mexico in 1980. Central banking was a different game in those days. None of us had heard of big data, artificial intelligence or digital currencies. Even personal computers were rarely seen. In the trading room, most of our business was done via telephone and Telex.

Policy frameworks were less advanced as well. In Mexico, we operated a fixed exchange rate system. It had functioned with a degree of success for a couple of decades. But over time, multiple macroeconomic imbalances had built up. In 1982, less than two years after I joined the central bank, our international reserves ran out and events came to a head. We had to abandon our exchange rate peg and experienced a fiscal, banking and exchange rate crisis. The banking system was nationalised and strict exchange controls were imposed.

The crisis came at a particularly unfortunate time for me. I had just been accepted into the PhD programme at the University of Chicago, on a scholarship provided by the Bank of Mexico. But with our foreign exchange reserves exhausted and the imposition of strict foreign exchange controls, it seemed likely that my scholarship would be put on hold. This would have forced me to postpone my studies, perhaps indefinitely.

I caught a lucky break, however. My boss in the trading room, understanding the situation, managed to scrape together USD 10,000 in cash. That money helped me through my first year in the United States. After that, the Bank of Mexico was in a sound enough financial position to meet the rest of my scholarship.

Events like this leave a mark. I thought to myself: “this macroeconomic madness has to stop”. And it became my mission in life. This sparked a common thread through much of my subsequent career – to devise appropriate policy frameworks to help

⁸ These remarks have also been published under the “Management Speeches” section of the BIS website.

countries avoid the type of economic and financial calamities that Mexico experienced in 1982 and again in 1994.

For the first decades of my career, I focused attention on Mexico. After finishing my PhD, I returned to the Bank of Mexico and worked in teams seeking to reform key aspects of central banking and macroeconomic policy: establishing a more flexible exchange rate regime, eliminating exchange rate controls, creating a domestic debt market, privatising the banking system, negotiating our external debt and drafting the law that granted autonomy to the central bank. After the 1994 crisis, I helped to devise the Bank of Mexico's inflation targeting framework, which remains in place today, and to modernise our payments system.

After 2000, I ventured out of the protective walls of the Bank of Mexico, doing stints at the IMF and Mexico's Finance Ministry, where I served as Undersecretary and then, from 2006 to 2010, as Minister. Mexico's Finance Ministry has a very broad mandate, encompassing taxation, government spending, debt management, customs and most of the financial regulatory responsibilities. Needless to say, involvement with politics is unavoidable. Going from the Bank of Mexico to the Finance Ministry was like going from playing golf to playing rugby.

But my transit through the Ministry of Finance was extremely enlightening, especially having spent the formative years of my working life at the central bank. I soon realised that fiscal and monetary policies are tied at the hip, and that it is a real challenge to, at least, prevent them from acting at cross purposes. It is essential to find a way to coordinate, even if the central bank is autonomous. Autonomy does not mean isolation. But, because formal coordination is almost impossible, it is necessary to craft it at a working level.

In 2010, I returned to the Bank of Mexico as Governor. To address the issue of coordination between fiscal and monetary policies, it was extremely useful for me to have sat on both sides of the table and understand both points of view. As we say in Mexico, "no es lo mismo ser borracho que cantinero" which translated means roughly "it is not the same to be the customer as the bartender". To build bridges is essential.

In addition to my efforts to strengthen coordination between the left and the right arm of macro policy during my years as a top policymaker in the fiscal and monetary domains in Mexico, I strove to:

- instil in society the value of preserving macro-financial stability, making clear that it is not worthwhile to risk it for short-term, ephemeral gains.
- strengthen institutions, in particular the autonomous central bank; and
- rely on markets, as they will typically provide the most efficient and unbiased evaluation on how you are doing.

Looking back at the past 45 years, I must express a degree of satisfaction with how macroeconomic and financial management has progressed.

There have been many bumps along the way. But if I compare the ability of emerging market economies – and even advanced economies – to navigate the significant economic challenges of recent years – the Great Financial Crisis, the Covid-19 pandemic, the subsequent inflation surge, the recent periodic bouts of financial market volatility – with their performance during the period of similar economic

shocks in the 1970s and early 1980s, one can only conclude that we have moved significantly forwards.

Our frameworks are better. Our understanding and management of risks is better. Our ability to manage business cycles is better. Our ability to adapt to new challenges and changing circumstances is better.

These improvements took hard work, and constant vigilance. So we should not be complacent. There will always be new challenges. But at least, by and large, we are not making the old mistakes.

After close to eight years as Governor of the Bank of Mexico, I have had the immense privilege to broaden my scope as General Manager of the BIS, where I have been able to contribute further to the broad pursuit of monetary and financial stability.

My tenure as BIS General Manager has coincided with many bouts of economic stress.

At the start of my term, the main task for many central banks was to find a way to lift inflation back up to target and to escape from the effective lower bound on interest rates. This seemed a great challenge at the time. In retrospect, it was probably the calmest part of my tenure!

In 2020, the Covid pandemic struck. Economies were placed into suspended animation and a prolonged recession, if not a depression, accompanied by even lower inflation, seemed inevitable.

But economies bounced back remarkably quickly, due in part to enormous monetary and fiscal stimulus. Instead of deflation, we experienced the largest global inflation since the 1970s.

A range of new policy questions emerged. These included: the need to better understand the behaviour of aggregate supply, particularly in a world of finely tuned global value chains; the dynamics of inflation and the drivers of inflation expectations.

The inflation surge illustrated powerfully the need to ensure consistency between monetary and fiscal policy, and for each policy arm to adequately take account of the others' behaviour. And it reinforced the urgent need for structural reforms to boost potential growth and enhance the flexibility of aggregate supply.

For a short while it seemed inflation might become entrenched. But central banks had learned the lessons of the 1970s. They tightened policy sharply and promptly and brought inflation down at remarkably little cost to economic activity. Higher interest rates, in conjunction with very high public debt levels, did, however, contribute in some instances to periods of financial instability.

By early 2025, the global economy looked set for a soft landing. However, the significant shifts in US trade policy announced in April have called that into question. It remains to be seen how these developments will play out.

In short, it has been a wild ride. But I look back with much satisfaction at our work at the BIS to analyse these issues to help central banks interpret them and devise appropriate policy responses. I remember early in the Covid pandemic I spoke on the phone to the Governor of one of our Board members and asked, "How can we help?".

He told me “we are busy fighting fires; we need someone to help us with the analysis”. I think that the BIS delivered.

Alongside macroeconomic volatility, the ongoing march of financial technology has been the other major theme of my tenure as General Manager. I have long been convinced of the need for central banks to pay closer attention to these issues. They pose great risks – with the increasing heft of so-called stablecoins in the financial system being a key one. More importantly, however, technology gives us the opportunity to construct a more efficient, secure and accessible financial system, for the benefit of society as a whole.

I am particularly satisfied, therefore, with the BIS’s work to articulate a vision for a modern financial system. It is a vision based on the application of modern technologies – including tokenised central bank money, tokenised commercial bank deposits and a broader ecosystem of tokenised assets – alongside a robust and secure regulatory and governance framework underpinned by the singleness of money and settlement finality on the balance sheet of a trusted public institution – the central bank.

Looking back on my whole career, I am proud to have played my role – however small – in making the global monetary and financial system more robust and secure.

At the same time, I am conscious that all successful careers rest, at least to some degree, on luck. I was lucky that my first boss was resourceful and considerate enough to find the funds to support my initial studies in Chicago. On numerous occasions since then, I have been lucky enough to be at the right place, at the right time and with the right people.

I readily acknowledge that I have not done it all on my own. The abilities of a policymaker are a function of their education, their experience and the people they work with. I was fortunate enough to go to amazing universities, in both Mexico and the United States, and to have had the opportunity to work on significant financial and monetary realignments during my early years at the Bank of Mexico. Most importantly, I have had the chance at the Bank of Mexico, at the Mexican Finance Ministry, at the IMF and at the BIS to work with incredible colleagues who have constantly pushed me to think harder and more deeply about the policy challenges we face.

In closing, I would like to share some brief thoughts on six issues that I think represent significant challenges in the coming years and that I trust that you, as policymakers and researchers, will find ways to address.

First, as a result of fragmented politics, limited fiscal space and low potential growth, central bank autonomy could be under attack. Defending it is crucial. But it is unclear how best to do so. At a minimum, central banks should do their utmost to fulfil their mandates, earning legitimacy through success. But the policies required to keep inflation low are not always popular. It will be crucial to preserve society’s support for there to be an institution within the state tasked with preserving the value of money.

Second, and relatedly, we need to prevent the de-institutionalisation of money. By that I mean the belief in the efficiency and legitimacy of privately issued money – whether it be unbacked cryptocurrencies or so-called stablecoins – as a substitute for money issued by central or commercial banks. Researchers, of course, can lay out the

many shortcomings of crypto and stablecoins. But, as I have argued many times before, it is incumbent upon public authorities to hasten the development of institutionally sound and technologically advanced alternatives to meet society's justifiable demand for a more modern monetary and financial system.

The third issue relates to growing fiscal imbalances. In too many countries, public debt is too high and fiscal space is too small. This makes it harder for central banks to do their job properly and feeds vulnerabilities in financial markets. It will be important in the coming years for fiscal authorities to improve this situation. Central banks, meanwhile, should make it clear that they cannot be the antidote to the consequences of fiscal imbalances.

Fourth, risks to financial stability must be controlled. Public authorities need to be more proactive. They need to be on constant lookout for new and emerging risks. They need to understand much better the behaviour of financial markets and the links between them. Above all, they must improve their monitoring capacity. Suptech and regtech must keep pace with the increasing sophistication of the financial system.

Achieving this brings me to my fifth point, the need to invest in technology. Artificial intelligence, big data and other advances are changing the way economies and financial markets operate. Public authorities must understand these technologies and incorporate them into their own operations. There is a sense that we are falling behind.

Sixth, and finally, we need to keep international cooperation and collaboration alive. Relatedly, we need to strengthen global safety nets and make sure they remain fit for purpose. These are public goods, and we all need to play our part.

So, there is much to do. I will be cheering for you from the stands. I wish you all the best in these endeavours.

Policy panel on “Challenges for central banks in a changing world”

Remarks by Rosanna Costa

Rosanna Costa, Central Bank of Chile

The last few years have presented us with a series of local and external events, some of which have unusual characteristics. The global environment has been increasingly dominated by economic and geopolitical events that are reshaping the landscape of international relations, global trade and economic alliances. Such changes have significantly increased uncertainty, to which the markets have reacted in patterns that differ from their usual ways.

Traditionally, higher uncertainty was reflected in greater volatility, widespread declines in stock markets and long-term yields, and an appreciation of the dollar.

However, for some time now, financial assets have been behaving atypically. After the recent announcements of tariff increases, while stock markets showed the sharp declines that were to be expected, the dollar depreciated, and long-term US bond rates rose, breaking historical correlations in response to uncertainty shocks.

This could be interpreted as a greater risk perception about the US economy, which has reduced demand for all its assets, not just long-term sovereign bonds, including stocks. Although the stock market has partially recovered from April's decline, its performance remains among the weakest globally. This additional risk could be related to less predictability in a changing institutional and public policy context.

However, that doesn't explain why long-term bond rates in other developed economies have also risen during 2025, a year marked by a significant increase in uncertainty. Some analysts argue that the effect of geopolitical tensions could be adding to the pressure on defence and infrastructure costs, among other trends that point to higher public spending. For example, when Germany announced that its military spending would be excluded from the fiscal rules, bund yields rose 30 basis points in just one day. This is also happening today, with important news regarding other conflicts that are unfolding in the world, in contrast to previous geopolitical episodes, in which the usual reaction was that long-term rates dropped as investors sought refuge in assets considered safe.

The difference seems to lie in the fact that today's public finances are starting from a much more deteriorated situation due to structural changes – mainly the ageing population – and the considerable increase in debt associated with the Covid-19 pandemic. Thus, fiscal deficits have remained persistently high after the pandemic, even above the levels of the Global Financial Crisis (GFC).

Then markets seem to be internalising the perception that fiscal slack has shrunk in some advanced economies, and the tendency is towards continuing to reduce it or hinder any adjustment.

This new scenario poses big challenges to central banks.

The first challenge is that as fiscal policy becomes less responsive to negative shocks, the responsibility for stabilising and restarting the economy will increasingly fall on monetary policy. This begs the question of whether our current frameworks have sufficient traction to take on this additional burden and how we can make them more effective.

Since the GFC, central banks have most frequently resorted to balance sheet policies. Cumulative research has shown that these measures played a key role in providing stimulus.⁹ However, in the aftermath of crises, not all banks have managed to reduce the size of their balance sheets. In the context of limited fiscal space, the risk of central banks buying sovereign bonds for reasons of macroeconomic stability could be perceived as fiscal dominance.

Given these limitations, communication is another key variable to watch carefully. One of the most widely used strategies since the GFC has been forward guidance. However, the evidence about its effectiveness is mixed, and it seems that its quantitative impact has been less than that of balance sheet measures.¹⁰ This channel requires further exploration.

Central bank communication has evolved from 20th century approaches, when it was believed that monetary policy was most effective if it took the market by surprise.¹¹ Although progress has been made in transparency, the marginal benefits seem to be diminishing, which also poses risks.

At the Central Bank of Chile, we implemented the monetary policy corridor in 2020. This instrument provides explicit guidance on the expected path of the interest rate, based on our central scenario, and includes monetary policy strategies for less likely alternative scenarios.¹²

It is a more transparent communication tool and an important step forward in the sense of raising monetary policy impact through the communication channel.

A second major challenge for central banks lies in the fact that, in contexts of high volatility and frequent disruptions, market movements become more difficult to interpret, requiring more rigorous and constant monitoring. This calls for a strengthening of the technical and analytical capabilities of the teams. At the Central Bank of Chile, we have made progress on the two fronts. In our analysis, we have

⁹ B Bernanke, “[The new tools of monetary policy](#)”, American Economic Review, vol 110, no 4, April 2020; R De Santis, “[Impact of the asset purchase programme on euro area government bond yields using market new](#)”, Economic Modelling, vol 86, March 2020; J Ihrig, E Klee, C Li, B Schulte and M Wei, “[Expectations about the Federal Reserve’s balance sheet and the term structure of interest rates](#)”, Federal Reserve Board Finance and Economics Discussion Series, 2012-57, July 2012.

¹⁰ M Rostagno, C Altavilla, G Carboni, W Lemke, R Motto and A Saint Guilhem, “[Combining negative rates, forward guidance and asset purchases: identification and impacts of the ECB’s unconventional policies](#)”, ECB Working Paper Series, no 2564, June 2021; A Orfanedou, “[The forward guidance trap](#)”, IMFS Working Paper Series, no 190, 2023.

¹¹ A Blinder, M Ehrmann, M Fratzscher, J De Haan and D Jansen, “[Central bank communication and monetary policy: a survey of theory and evidence](#)”, Journal of Economic Literature, vol 46, no 4, December 2008; T Macklem and J Vardy, “[20 years of central bank communications, and lessons for the future](#)”, Central banking in the Americas: lessons from two decades, November 2023.

¹² Central Bank of Chile, *Monetary Policy Report*, March 2020, box “[Monetary policy corridor](#)”.

incorporated new structural time series methodologies to interpret movements in financial markets in terms of their most fundamental determinants.

Regarding access to new sources of information, the use of microdata has allowed us to generate more timely and higher-frequency indicators. Of course, focusing too much on high-frequency monitoring risks losing sight of the general trends. Therefore, it is key to learn to interpret the signals that these data give us about the broader picture and to integrate high-frequency analysis with our medium-term modelling. In addition, microdata also allows for causality analysis and much more robust structural interpretations to the extent that administrative databases covering different dimensions of the economic decisions of households, firms and financial institutions can be cross-referenced. This effort must be maintained.

Let me conclude with an invitation to collaborate. The world we face is more uncertain and demanding. It will be up to us, as a central banking community, to strengthen our alliances and learn from our shared experiences.

Remarks by Lesetja Kganyago

Lesetja Kganyago, South African Reserve Bank

When I hear colleagues talk about new challenges facing central banks, lately I feel like these challenges are very familiar. Many of them are problems we have been facing in South Africa since I went to the South African Reserve Bank (SARB) in 2011 as a Deputy Governor.

This is a relatively new feeling. A few years ago, the concerns I was hearing were often remote from our experience. We never went near the zero lower bound. We didn't suffer deflation risk. Our government never came close to issuing negative-yield debt. We didn't have overheating asset markets.

But now? I hear a lot about unsustainable debt; we have been worried about the absence of fiscal space for years, and we have plenty of fiscal risk premium in our yield curve. We get advice about how we should cut rates and buy bonds, as if the borrowing cost problem was something to be solved by the central bank, and not a symptom of policy issues elsewhere. And dealing with pressure on monetary policy to do something about growth, where the problems are mostly on the supply side, has become almost routine.

For inflation, we rarely face price pressures from excess demand. For most of my time as Governor, we have been tackling inflation from supply shocks and from elevated inflation expectations. We have delivered on our inflation target mostly by managing these two factors. Very rarely has our monetary policy been about fine-tuning demand.

I think this reflects a broader collapse of the old emerging market / advanced economy distinction, sadly driven by more advanced economies taking on the tendencies of emerging market economies, rather than the other way around. These tendencies comprise more volatile politics and weaker institutions, including fiscal institutions that can ensure government debt sustainability. It's hard to say these days whether it's the advanced or emerging market economies that have worse debt

dynamics.¹³ It's also going to include climate change, which will make supply side shocks a bigger part of the inflation process for rich countries.

If this is true, it's obviously bad news, but there is also a silver lining. The good news is that central banks can still deliver on their mandates in these conditions. South Africa has its challenges, and if we can do it, you can do it.

I'll also say it can be done without the central bank being hated – in other words, without triggering so much opposition you lose your independence. No doubt, there is short-term unpopularity in raising rates when growth is weak and unemployment is high. But over time, you win respect for delivering on your mandate, for defending your independence, for demonstrating a commitment to the public interest.

For us, the key ingredients have been prioritising the objectives within our power and mandates – low inflation, financial stability, efficient payments – and pursuing them in a transparent way, demonstrating that we are trustworthy and accountable.

There is also one more silver lining. Our BIS meetings have long been useful, but the conversations are going to be even more valuable now there is more overlap in our challenges.

To conclude, I would like to say a few things about digitalisation and payments. Payments are part of our core business, up there with price and financial stability. Until recently, our payments work was mostly about providing notes and coins, for ordinary retail customers, and then managing the interbank payment system, for final settlement of high-value transactions. But all this is changing.

Unfortunately, the direction of change is not well understood. Of the public questions I get about the future of payments, 90% involve the word "crypto", but there is not much crypto in our oncoming payments revolution. What there is, is digitalisation.

We have all learned a lot from our Brazilian colleagues, and their Pix system, as well as our Indian colleagues and UPI. I could also mention Kenya's M-Pesa, and various others. The core thing we have learned is that you can achieve attractive alternatives to cash, with digital platforms that are cheap, instant and comparatively safe.

South Africa has a comparatively sophisticated financial system, and well-off South Africans have access to highly efficient digital payment options. But we at the SARB are now working to build a public payments utility so this convenience can be enjoyed by all South Africans. We also hope and expect this infrastructure will crowd in private sector innovation and investment, as it has in economies like Brazil's.

With any luck, this innovation is going to crowd out some of the crypto questions, and we'll be able to spend more time talking about digital payments.

I also think this will help us meet the crypto challenge in another way, which is to be competitive. All of us here will understand the logic of market economics and value competition. We know competition promotes efficiency and productivity gains.

¹³ See this comment in a recent FT article: "Previously I'm thinking: 'I can't buy South Africa, I can't buy Brazil, because look at all of those fiscal concerns'," he added. "But then I compare them to the US, to Japan... that fiscal concern argument no longer really holds, because we've got the same in developed markets." (<https://on.ft.com/44w2QnK>)

At the same time, we run central banks, and those central banks are monopolies. There is no country here with two or more central banks. And we tend to be suspicious of others trampling on our turf.

Naturally, we have good reasons to be critical of crypto, for instance the way it enables crime and its relatively unstable value.¹⁴ But we also need to respect its appeal, when that consists of legitimate preferences like being a better store of value or a better means of exchange. If crypto innovations like stablecoins can find ways to win market share from central banks, that should make us think hard about what we can do to make our own products more appealing. For us at the SARB, digitalisation is one part of the response, and of course defending price stability is another. If we do a good job of delivering price stability, financial stability and fast, cheap, safe payments, there won't be good reasons to use other payment systems. There will only be illegal reasons.

Thank you.

Remarks by Chang Yong Rhee

Chang Yong Rhee, Bank of Korea

Good afternoon, distinguished colleagues. It's a pleasure to be part of this important panel. Today, I'd like to share some of the current challenges the Bank of Korea is facing. As you will notice, some of these align with global concerns raised by other speakers, while others are more specific to Korea.

1. The uncertainties

"Uncertainty" is something of a buzzword these days, and that's especially true for Korea, which has been hit by both domestic and external turbulence.

After the unexpected and unnecessary declaration of martial law in December last year, domestic political uncertainty – which lasted longer than expected – has weighed heavily on household consumption and business investment. As a result, growth in the first half of this year was a mere 0.3% (year on year; 0.2% quarter-on-quarter average), significantly lower than our potential growth rate of around 2%.

Although we are finally recovering from this domestic uncertainty following our presidential election in early June, external uncertainties – such as rising US tariffs and the Israel-Iran conflict – have reemerged all too acutely and may accelerate going forward.

Importantly, in our case current risks are not symmetric, as downside tail risks are more dominant. Since Korea is not in a situation where it can implement retaliatory tariffs, the increase in US tariffs is generating disinflationary, rather than inflationary, pressure on the Korean economy. The tariffs are expected to weaken our export-driven economy, leading to lower domestic demand and investment, which in turn cools down price pressures. Accordingly, there are increasing calls for the Bank of

¹⁴ BIS, "The next-generation monetary and financial system", *Annual Economic Report 2025*, June 2025.

Korea to lower the policy rate more aggressively, given the slow growth and downside tail risks.

However, the transmission channel of monetary policy has also become more uncertain. To a greater extent, we are seeing increasing evidence that our rate cuts and the expectation of continued easing are contributing to rising housing prices in metropolitan areas, rather than stimulating the real economy. This has fuelled public concern that further rate cuts could reignite the property market we have worked hard to stabilise, creating a significant policy dilemma for us.

The Bank of Korea is well aware of this trade-off between economic stimulus and financial stability, which is why we are working closely with the government to coordinate our monetary, fiscal and macroprudential policies so that we can address this situation with a balanced approach. Given these uncertainties, finding the right policy mix is our most immediate and critical challenge.

2. Communication challenges amid rapid structural change

Our second challenge is communication. When deciding the appropriate pace of monetary easing, to accurately anticipate its effectiveness it is critical to distinguish cyclical fluctuations from structural declines in growth. For example, growth in 2025 is expected to be only 0.8%, which would be the lowest figure in the past 30 years, excluding the periods of the Asian Financial Crisis and the Covid-19 pandemic. In fact, 0.8% was the growth rate we experienced in 2009 in the aftermath of the Great Financial Crisis.

However, a direct comparison is misleading. Our potential growth rate around 2010 was about 3%, whereas it is now below 2%, mainly due to rapid population ageing and intensifying competition from China. According to our research, the probability of negative quarterly growth is now three times higher than it was in 2010.

This becomes a communication challenge for the Bank of Korea because despite the facts, public expectations are slow to adjust, thus leading to a certain perception gap. Many in the general public still believe Korea should grow by more than 3%, based on our past success. Such expectations are understandable given our country's remarkable history of economic development. Yet this very legacy makes it difficult to have an open and realistic conversation about our current capabilities. This perception gap usually leads to strong demands for more aggressive stimulus policies, rather than calls for structural reforms, which is what is really needed. This is why we repeatedly emphasise the need for structural reforms in the labour market and our pension system. These are not easy tasks, and they require a strong social consensus and political leadership. While such reforms may lie outside the central bank's direct control and mandate, turning a blind eye to them would be irresponsible for a central bank, as they directly affect our economy's long-term health and the effectiveness of our monetary policy.

This also raises the question of how far a central bank should go in discussing structural reforms aimed at boosting potential growth. Our role is to provide the public with objective data and analysis – to present the uncomfortable truths, much like the BIS – so that a more informed and productive national conversation can take place. We act as a facilitator for building that crucial social consensus. Communicating this complex reality is a growing challenge for the Bank of Korea, as our potential growth rate continues to decline.

3. Challenges from the rise of dollar-denominated stablecoins

Our third challenge is related to, yes, stablecoins. In the light of surging dollar-pegged stablecoins and the recent passage of the GENIUS Act in the United States, Korean stablecoin advocates and fintech firms have intensified their push to allow non-bank entities to issue stablecoins on public blockchains. At the same time, their criticisms against the Bank of Korea's pilot projects with banks using private, permissioned blockchains are on the rise.

The advocates argue that without won-pegged non-bank stablecoins, dollar-pegged stablecoins will quickly dominate Korea's market and erode monetary sovereignty. I would argue the opposite. The real threat to our monetary framework would be allowing a privately issued stablecoin to become a widespread means of payment without the robust safeguards of the banking system. If multiple non-bank institutions were to issue their own won-denominated stablecoins, it would lead to a proliferation of private currencies with potentially different values. This risks a return to the confusion of 19th century private money, where implementing monetary policy was exceedingly difficult and could ultimately force the painful process of re-establishing a central bank system. They also claim that public sector initiatives stifle innovation and simply protect the vested interests of banks. They portray the private blockchain as a closed room full of conservative bankers in neat fancy suits, while the public blockchain is seen as an open arena for startups in trendy T-shirts and jeans. This issue even became politicised during our recent presidential election.

With the sharp rise in fintech stock prices – driven by expectations that won-based stablecoins will soon be legalised – I foresee an uphill battle for central banks in communicating the risks with respect to stablecoins. In fact, these risks may be even greater in Korea: the issuance of unregulated won-denominated stablecoins could make it easier for the user to convert to dollar stablecoins and ultimately undermine our capital flow management regulations. This is precisely why we should not rush into things. Instead, we should advance cautiously, for example, with our pilot tests for tokenised deposits, conducted with commercial banks within our permissioned network. Through these tests, we need to verify the technology's feasibility and safety within the existing financial system. This foundational work is essential to properly assess how further innovation from the private sector can be safely integrated in the future.

Thank you for your attention.

Remarks by Martin Schlegel

Martin Schlegel, Swiss National Bank

As the other panellists have made clear, the world is changing. Three important changes are demographics, digital innovation and geoeconomic fragmentation. I would like to talk about how these changes affect central banking – not just monetary policy, but also other statutory tasks.

Demographic change

Let me turn first to a long-term trend – demographics. In most regions of the world, average age is increasing. The population pyramids look less like pyramids, and more like upside down onions – in other words, thin at the bottom, bulging in the middle and narrowing again at the top. Population ageing affects the workforce. Take Switzerland as an example: Without immigration, the working age population would have declined. For the last 15 years, more people have reached retirement age than have entered the working age population. Our estimates indicate that, compared with the past 40 years, employment may grow at only half the previous rate. We should therefore expect lower economic growth.

But an ageing population may also weaken the transmission of monetary policy. As more people grow older, health services make up a larger part of the economy. The demand for health services tends to be inelastic and does not respond much to interest rate changes. This can reduce the impact of monetary policy. We might need to make stronger interest rate adjustments to steer demand.

Demographic change can also affect another area of central banking: payments. We see a strong trend from cash to electronic payments. Young people – the “digital natives” – mostly pay using cards or mobile phones. As more and more people grow up as digital natives, the use of cash may decline further. But even these digital natives will eventually get old. Will they keep up with ever-changing technology, or will they revert to something simpler, like banknotes and coins? Either way, it is important for central banks to continue to fulfil their mandate in both cash and cashless payments. Cash will remain important in the future, by fostering inclusion, competition and resilience.

Digital innovation

The second change I would like to talk about is digital innovation. Digital innovation affects many areas, one of which is economic analysis.

New data science methods are enhancing our analytical capabilities. But a key benefit does not come from these methods as such, but rather the capacity to analyse vast and diverse types of data. Today, it is possible to process all kinds of data – like text, images or audio – even in real time. This means that we can analyse the economy faster and in more detail. For instance, we can track economic activity via payments data or assess the economic outlook based on news reports. It is essential that we improve our capabilities – especially when we consider that our times will remain uncertain. For it is precisely in periods of uncertainty that these readily applicable and data-driven methods are most valuable for policymaking.

Digital innovation can also pose risks – here I have financial stability in mind. The financial sector has benefited a lot from digital innovation. Digital solutions bring economies of scale. They allow financial institutions to offer services that are faster, smoother and more efficient. These improvements often go hand in hand with outsourcing. Financial institutions get services from specialised providers, who in turn frequently depend on other providers. This builds chains of interlinking services that are intricate and sometimes opaque.

Breakdowns anywhere in these chains can pose risks to financial stability. Last year, a global IT outage disrupted industries around the world, including financial

institutions. The outage was caused by a faulty update to security software. This incident clearly shows how the failure of even a small link in the chain can have a broad impact. Financial stability now also depends on the resilience such chains.

Geoeconomic fragmentation

Let me now turn to the third development: geoeconomic fragmentation. A more fragmented world is poorer as it brings fewer gains from trade. From a monetary policy perspective, the main challenge lies in managing the transition. Sudden increases in fragmentation can disrupt activity and shift prices. For instance, the introduction of tariffs dampens demand. An example on the supply side is a spike in energy costs. Such supply shocks not only disrupt the economy, they also generate a trade-off in monetary policy: the trade-off between stabilising prices and stabilising economic activity.

A longer-term effect of fragmentation concerns financial stability. Fragmentation is evident not just in trade policy, but also in other areas – for instance, in diverging regulation. Fragmentation makes it more complex for financial institutions to conduct business internationally. This creates risks and lowers international risk-sharing – in short: a challenge for financial stability. Another aspect is crisis management. Managing a financial crisis requires international cooperation. Fragmentation makes international cooperation more challenging. Given these trends, it is even more important that we keep working together here at the BIS.

Conclusion

In sum, our changing world holds many challenges for central banks. What matters is how we deal with these changes. In this, Agustín Carstens has set an example – bringing people together, getting things done, strengthening international cooperation and fostering innovation. Thank you!