



Commencement speech: Central banks at the crossroads

Speech by Luiz Awazu Pereira da Silva
Deputy General Manager, Bank for International Settlements¹

Asia School of Business (ASB), Master of Central Banking
Kuala Lumpur, 19 August 2023

Madame Co-chair of the Asia School of Business, dear Governor Zeti Aziz, Governor Abdul Rasheed of the Central Bank of Malaysia, dear Professor Sanjay Sarma, President, CEO and Dean of the Asia School of Business, Members of the ASB Board of Governors and Directors, Members of the MCB Advisory Board, dear ASB Management, Faculty and Staff Members, respected guests of honour, and last but not least, dear graduating students of the Master in Central Banking graduating Class of 2023. Congratulations on your work and efforts!

Let me thank you for the kind invitation to share my thoughts on central banking to the graduating students at the prestigious Asia Business School's Master in Central Banking Class of 2023. It is a privilege and honour to speak to you. As you have just finished your studies, you are familiar with the facts and the history of central banking. In my address I would like to build on this knowledge and think together about some challenges and how the future path of central banking might address them. Naturally, thinking about the future comes with many caveats: trends can change quickly. I am sure you are familiar with the famous Yogi Berra quotation, "It's tough to make predictions, especially about the future." But you have an advantage: you are the future.

Central banks, and central bankers, stand at a crossroads. They face not one, but five major forks in the road. In line with their mandate and in addition to their known achievements, central banks, in the 21st century need to reflect carefully on how the new challenges could affect their role. I will list five of these forks: (1) the re-emergence of inflation; (2) climate change; (3) inequality; (4) digital financial innovation; and (5) artificial intelligence. As you know, modern central banks have been successful because they have been capable of strengthening their analytical thinking when facing challenges in the past, balancing risks properly and choosing the best path, even if that path looked challenging. Now, the many consequential issues that we face imply that central banks will have to carefully identify and analyse the paths they mean to tread.

¹ Deputy General Manager, Bank for International Settlements (BIS). These remarks are mine and do not necessarily represent the views of the BIS. I thank Előd Takáts for his contribution.

Fork 1: Inflation

The first fork relates to the re-emergence of inflation, its interpretation and its future pattern. After the Great Moderation and the Global Financial Crisis, which was followed by a long period of monetary and fiscal stimulus, inflation has returned.² Not surprisingly, inflation rates started to rise after the faster-than-expected post-pandemic recovery, as supply chains were stretched. Price increases accelerated further after Russia invaded Ukraine, with food and energy prices driving inflation higher. Many advanced economies have experienced headline inflation rates not seen in decades. Now, headline inflation is moderating slowly. However, core inflation has proved to be more resilient than expected.

For monetary policy, the first debate was about how transitory this inflation might be, and therefore the timing and intensity for policy reaction. With hindsight, and when core inflation is so resilient, it is easier now to be more assertive. Indeed, fighting inflation requires monetary policy rates to be set at a level that ensures convergence to target, while inflicting minimal damage on activity, employment and financial stability. Thus, fighting inflation during this “last mile” becomes a challenging balancing act, as laid out in the recent BIS Annual Economic Report. Fortunately, some challenges during monetary tightening episodes are well known.

For example, one relates to financial stability. Financial intermediaries are vulnerable to interest rate increases. Banks, for instance, tend to have longer-maturity assets (say loans) than liabilities (say deposits). As interest rates increase, shorter-maturity deposits tend to move faster than longer maturity loans: the result is lower profitability, perhaps losses – and in extreme cases, such as Silicon Valley Bank, potential default. It is well known that periods of rising interest rates are marked by a higher incidence of bank failures and economic crises – which is why supervisors and regulators are attentive to developments and any sign of stress in financial markets and institutions.

A second challenge is slowing economic growth. Of course, moderating economic activity is an intended consequence of fighting inflation: aggregate demand needs to match supply in the economy to help contain upward pressure on prices. Yet, calibrating slowdowns is always delicate as they reduce corporate profits, increase budget deficits (as social transfers grow) and lift unemployment.

So, the art for monetary policymakers is to find the policy mix that will best avoid running the risk of stagflation, ie lower growth accompanied by sticky inflation. And therefore, monetary policy, while contributing to macro-financial stabilisation in the short term, should be accompanied by growth-enhancing structural reforms to strengthen long-term economic prospects.

Facing these challenges, emerging market economies (EMEs) have weathered the recent crisis much better than before. Traditionally, EMEs have experienced greater vulnerability to monetary tightening in advanced economies. Risk aversion associated with weaker institutions and macro-financial imbalances made them more vulnerable to shocks, including spillovers from advanced

² See Carstens (2022).

economies. Therefore, in the past, tightening in advanced economies has triggered sudden stops in capital inflows and large capital outflows, resulting in higher FX volatility.

This time, it was different. EME central banks started to raise interest rates ahead of their peers in advanced economies, confirming that they have indeed strengthened their policy frameworks. Stronger macroeconomic fundamentals and more robust corporate and government balance sheets, along with a more stable banking sector, have underpinned the robust central bank response. Thanks to these stronger fundamentals, the FX impact of advanced economy tightening was more muted than in the past. In particular, many EME central banks have learned their lessons from past crises and have strengthened their monetary-financial stability policy frameworks to preserve price and financial stability by using a broader toolkit combining more policy instruments.³

Now what about the future of inflation? This is what you will have to understand and address. These will be new challenges as it is likely that you will have to reflect on structural changes that are in the making and could result in cost-push factors, whether one-offs or perhaps extended over a longer period of time. In labour markets, for example, these are reflected in post-Covid reservation wages that are up with unfilled vacancies for some low-skill services; in the higher costs of operating global value supply chains, with the reshoring of some activities for security reasons; in the reshaping of global trade due to the lingering of geopolitical tensions including the war in Europe; in the fading of the disinflationary effect of China's role in reducing global manufacturing production costs;⁴ and, last but not least, in the additional costs for greening our economies, in terms of both technological investments and rises in production costs due to potential regulation and taxes on activities with a high carbon footprint. This brings me to the second fork.

Fork 2: Climate change

The second fork is presented by climate change. Climate change impacts central banks' core mandates because it affects both price and financial stability. Indeed, climate change represents a new type of systemic risk, which we have characterised as a Green Swan.⁵ Unlike rare tail events, such as the Black Swans of the Global Financial Crisis, Green Swans are doomed to happen with certainty if not addressed by appropriate policies.

Climate change presents two main kinds of risk. Physical risks stem directly from the effects of more frequent extreme weather such as more frequent floods, heatwaves, rising sea levels or lower crop yields. Transition risks stem from the transition to net zero economy, which can produce changes in asset valuation due to exposure to climate-related risks.

³ Agénor and Pereira da Silva (2023).

⁴ Goodhart and Pradhan (2020).

⁵ Bolton et al (2020).



As there is no “silver bullet” to address these risks, central banks need to coordinate their actions with other stakeholders such as governments, other public agencies, the private sector and other actors in society, locally and globally.

Coordination is all the more relevant because climate change is a global negative externality that forces our societies as a whole to confront complex challenges. On the one hand, climate risks threaten macroeconomic stabilisation. On the other hand, the financing requirements of investing in the innovations needed to foster a net carbon zero economy call for the mobilisation of very large public and private financial resources.

Moving towards a net zero carbon economy is a typically Schumpeterian creative-destruction process that has large macroeconomic implications. Our best scientific experts estimate that huge investments in green technologies must be made quickly, with corresponding financing needs. The financing mix is likely to involve several sources: taxes (including on carbon), and government and private debt. While the economic impact will depend on the transition speed and the precise financing mix, it is likely that climate-related investments will affect macro-financial conditions in a substantial way. These large investments may increase the neutral rate in the economy, and they might also require novel forms of private-public burden-sharing. Last but not least, climate risk-related financial regulation and supervision might be necessary to enable the financial system to adequately map its climate risk exposures as well as channel these large investments effectively – along with more stringent regulation in the real economy to ensure the path to net zero in our production and consumption processes.

In responding to climate change, central banks are displaying a careful balance in their actions and have already joined forces in the Network for Greening the Financial System (NGFS). Their analysis is reflected in a number of important published reports: the construction of climate scenarios to help financial sectors to work from a common set of hypotheses; guidelines for identifying climate risks; discussions on the implications of climate change for monetary policy; solutions for financing the transition with blended finance etc.

Climate-related action poses obvious challenges for central banks, some strictly related to their traditional price and financial stability mandates and some when the radical uncertainty that Green Swans bring is considered, such as the cost-push factors related to the effects of global warming on agriculture, migration and labour, and the financing of the transition to net zero. Finally, climate change has distributional consequences: it affects primarily poor countries and poor people in rich countries. It is likely that you will have to deal with the severe distributional consequences of global warming, especially if we do not manage to address it in time. That sense of urgency and the impact on the poor need always to be remembered in order to strengthen and calibrate our policy responses. That brings us to the next fork.

Fork 3: Inequality

Inequality within countries represents the third fork. Inequality has declined between countries as more effective social policies have been deployed in both advanced economies and EMEs. The distance between poor and rich countries has shrunk tremendously. However, inequality has increased within countries. This rising within-country inequality has compounded many other

questions about fairness, equity and socio-political stability. But, perhaps surprisingly, it also matters for monetary policy.⁶

A line of research conducted at the BIS shows that monetary policy is less effective in more unequal societies. In very simple terms, as rich households tend to save more and their consumption is less sensitive to their income, more unequal societies may respond less to monetary policy stimulus. Furthermore, an adverse feedback loop can arise, because recessions tend to increase inequality. More unequal societies respond less to expansionary monetary policy and experience slower recoveries from recessions. This, in turn, keeps them more unequal. We call this “inequality hysteresis”.

Central banks need to understand the impact of inequality on monetary policy effectiveness. In particular, this might imply exploring new types of modelling approach in fulfilling their mandates, which some central banks such as the Fed and the ECB have started doing. In addition, they can take into account the way in which fiscal policies are addressing today’s income inequalities, through the progressiveness of taxation and the quality of spending on public goods such as education and health, while structural reforms and policies can help to reduce future inequality, including through fostering innovative financial technology for social inclusion. That brings me to the next fork.

Fork 4: Digital financial innovation

Digital financial innovation represents the fourth fork. Technological innovations such as big data, fast payment systems and distributed ledger technology (DLT) are gaining ground – in both the financial sector and the real economy. This is visible in digital payments, in online lending and insurance, and in applications of DLT in crypto and decentralised finance (DeFi). We at the BIS are exploring these issues in our research and also in the hands-on work of the BIS Innovation Hub.

These technologies are helping to increase access to finance and are playing a key role in fostering financial inclusion in many countries. The technological advances in digital finance can dramatically reduce the cost of processing information and expand the set of available contracts – including in (social) insurance, and sometimes in voluntary adherence to new contractual arrangements.⁷ This could, in principle, help to smooth consumption and enhance welfare, allowing more people to escape poverty traps.

Digital financial innovation thus offers the potential for a brighter future. If we develop common interoperable platforms and safeguard data privacy, we can strengthen global links and improve resource allocation. Furthermore, we can offer financial tools for the previously underserved and poorer segments of our societies. We can also strengthen trust in the financial system through

⁶ Pereira da Silva et al (2022).

⁷ Karaivanov et al (2023).

new, more widely available and higher-quality financial products. In this way, digital innovation can contribute to a more efficient and more stable global financial system.

Yet, there is a flipside to this. Technologies can also allow concentration and market power and trigger new types of discrimination. To assess their net impact, one must look at all aspects of the existing technological transformation and be guided by more data and evidence. What matters is how digital technologies are applied, and in particular what role public policy will play.

Grasping this potential requires the public and private sectors to work together. The development of digital financial products, like all technological advances, is a double-edged sword. Used responsibly, new technologies can offer increased welfare for all, but they can also result in new forms of discrimination.⁸ That is because digital innovation can also drive a fragmentation of the financial world. Differing systems can divide different user groups and countries from each other. Globally, in the context of increased geopolitical tensions, digital innovation can foster segmentation and disintegration along geopolitical fault lines. Locally, if abused, digital technologies can give rise to more sophisticated, and thereby less perceived, discrimination against specific minority groups. They can also pose new challenges to global and local financial stability by amplifying asset price volatility, contagion, exuberance and, for example, accelerate deposit runs simply using smartphone apps. At the extreme, these trends could result in a more volatile financial system, eroding people's trust in money.

Thus, central bank actions matter in digital innovation: they can steer digital innovation towards a more efficient and more stable financial system, with new instruments for supervision and more data points. Central banks can innovate and consider implementing faster payments systems with new digital tools, such as central bank digital currencies. At the same time, they can build on their track record as trusted safekeepers of price and financial stability. Conferring the credibility of a central bank on new digital tools offers a new form of public good. However, the exponential development of cryptoassets without a proper regulatory framework is just one among many signals of potential dramatic changes where a multiplicity of hitherto human decision-making processes can be automated. If this occurs on a large scale, too many processes will escape from our human institutional settings, which provide necessary checks and balances that have so far ensured that our ethical values always play a critical role when deciding on how, when and to whom new technologies spread. Yuval Harari has warned us against losing these safeguards,⁹ and introduces to the next and final fork.

Fork 5: Artificial intelligence

If at some point in the future, algorithms were to determine most if not all of our societies' decisions, this will certainly go beyond mechanically applying some form of a Taylor rule to monetary policy decisions. The recent leapfrogs in artificial intelligence represent the fifth and final fork. Artificial intelligence (AI) promises jumps in productivity, greatly expanding the set of

⁸ Pereira da Silva and Frost (2023).

⁹ Harari (2023).

routine tasks that can be automated. Productivity jumps seem particularly relevant for key public goods such as health care and education. Over the past decades, healthcare and education costs have increased relative to the price of physical goods, because increasing demand for these public goods were not matched by a commensurate increase in productivity. AI promises exactly such an increase in health care and education productivity: just imagine AI nurses analysing symptoms more accurately than human doctors can. Or imagine AI teaching assistants promptly answering questions and explaining concepts better than professors can. Thus, AI could radically change the nature of health care and education, thus perhaps lowering costs and further democratising access. But there is a but...

Indeed, progress in AI technology also has potentially challenging aspects. Given big data and the scalability of computer power, there is a realistic chance for non-linear developments, that is, large jumps in AI capabilities. AI with untrammelled capabilities could play an unknown role if not properly supervised. Tireless AI surveillance could monitor human activities, controlling and reducing the critical thinking by humans that is the basis for innovation and epistemological revolutions. Even in a more benevolent scenario, we might lose our control over an expanding set of economic, social and political decision-making. In addition, AI might replace millions of semi-skilled and even skilled jobs, at a pace that is not commensurate with the creation of new activities for humans. Thus, the risk of rising skilled unemployment in many sectors is not negligible, putting our social welfare systems under further strain. This concern for AI's distributional consequences for employment is expressed by Daron Acemoglu and Simon Johnson in their new book *Power and Progress*.¹⁰

In addition, AI development might represent a new, non-biological form of intelligence, raising ethical and practical questions about a potential new life form. We understand humans to have human rights but how should we treat AI fairly?

Thus, AI poses unprecedented challenges for all of us. For central banks, one can see increased powers to monitor price and financial stability with the help of AI. At the same time, there is a possibility that AI might take over key decisions on price and financial stability and challenge what has been so far the "art" of central banking: a reliance on many models to analyse data, project scenarios and make forecasts, but always in the context of a decision-making process where the balancing act of assessing the balance of risks was conducted by humans, in a fairly sophisticated collegial way, with a well-tested institutional setup, and under the scrutiny of society and its representatives. Your generation will have to reflect on these new challenges sooner than later.

Conclusion

Central banks stand at a crossroads. Five major forks are already with us: (1) the "last mile" for convergence of inflation to target; (2) climate change; (3) inequality; (4) digital innovation; and (5) artificial intelligence. The choices that central banks make today about these forks in the road will affect macroeconomic conditions for years to come. And given the important role that central

¹⁰ Acemoglu and Johnson (2023).

banks play in societies, they will have to consider their implications. And to better answer these challenges, you will have also to help foster in the central banking community a culture of diversity and inclusion.

The combined effects of these challenges are hard to grasp, precisely because the uncertain interaction between decisions taken across different forks. One obvious conclusion is that that our traditional economic and monetary models do not seem to be designed to capture this complexity and we need new innovative models and approaches to guide central bank policies. While we are already, in many cases, including more instruments in our toolkit, ranging from macroprudential tools, asset purchases, market interventions in specific circumstances, and new forms of communication, and while we are able to more effectively calibrate monetary policy and tackle new emerging risks, we also need to keep our models tractable and retain some simplicity in communicating our role and function in society.

When you look at the forks or the challenges that you will most likely have to face, in a nutshell they all affect the current parameters that guide monetary policymaking or the “stars” usually associated with the concept of a neutral level for the interest rate and also unemployment. Structural changes in labour supply, re-shoring, a new geography for trade, geopolitical tensions and greening our economies are apparently all cost-augmenting factors. Obviously, many changes will be productivity-enhancing in due course, such as those associated with using more digital financial innovation and AI. But you will have to go through a period where it will be difficult to assess the combined net effects of all this and especially the timing when each and all of these factors will manifest. Therefore, your art as future policymakers will be to analyse these future trade-offs, their transitory or more permanent nature, and construct a determined and credible strategy for safeguarding price and financial stability. I am confident that you will do so and successfully achieve your objectives with the appropriate intensity and right timing for your policy actions. And you could also reflect on other possible objectives that societies might mandate you to fulfil. Finally, as mentioned before, many of these challenges have distributional consequences: you might also have to analyse how your future treasury department colleagues will design their fiscal policies to respond to these new financing needs, quite possibly adopting innovative tax burden-sharing in a sustainable and balanced format that should improve the one in our existing social welfare states.

While the five forks that I evoked above are challenges to think about, the way forward is perhaps not to despair when confronted with them, and not to try to embrace everything, but to use the traditional wisdom of Tinbergen’s separation principle, and seek to construct policy frameworks that, with defined objectives and instruments, have the aim of best serving the common good. And when I look at the smart young students receiving their degrees in central banking today, I am absolutely sure that all of you will help to make progress towards meeting these critical challenges for central banking.

Thank you.

References

Acemoglu, D and S Johnson (2023): *Power and Progress: Our Thousand-Year Struggle Over Technology and Prosperity*, MIT Press.

Agénor, P and L A Pereira da Silva (2019): *Integrated inflation targeting: another perspective from the developing world*, BIS-CEMLA, February.

————— (2023): “Macro-financial stability policy framework in bank-dependent economies: an operational manual”, *BIS Papers*, forthcoming.

Bolton, P, M Després, L A Pereira da Silva, F Samama and R Svartzman (2020): *The Green Swan: central banking and financial stability in the age of climate change*, BIS.

Carstens, A (2022): “The return of inflation”, speech at the International Center for Monetary and Banking Studies, Geneva, 5 April.

Goodhart, C and M Pradhan (2020): *The Great Demographic Reversal, Ageing Societies, Waning Inequality, and an Inflation Revival*, Palgrave Macmillan.

Harari, Y (2023): “[AI and the future of humanity](#)”, video of presentation at the Frontiers Forum, YouTube.

Karaivanov, A, B Mojon, L A Pereira da Silva and R Townsend (2023): “Digital safety nets: a roadmap”, *BIS Papers*, forthcoming.

Pereira da Silva, L A and J Frost (2023): “Digital finance and shared prosperity: paths forward”, publication based on remarks by the BIS Deputy General Manager at the Silk Road Cash & Payments Conference Almaty, Kazakhstan, 28 March.

Pereira da Silva, L A, E Kharroubi, E Kohlscheen, M Lombardi and B Mojon (2022): *Inequality hysteresis and the effectiveness of macroeconomic stabilisation policies*, BIS, May.