



PRUDENT RISK MANAGEMENT

Approach to Price Stability

| Theory and Practice at the
| Central Bank of Armenia

Edited by

DOUGLAS LAXTON | HAYK AVETISYAN | VAHE AVAGYAN

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Geopolitical tensions, economic fragmentation, fiscal unsustainability, and climate risk have ushered in a fundamentally new era of high and persistent economic uncertainty. How should central banks maintain price stability in the face of these immense challenges? This book lays out the conceptual and practical underpinnings of the Central Bank of Armenia's novel approach to policymaking under uncertainty: the Prudent Risk Management Approach to Price Stability. The policymaking framework introduces the first-ever structured and institutionalized risk management model for monetary policy, defined by the systematic use of multiple scenarios and the highest degree of policy transparency and accountability. It redefines the job of monetary policy away from optimizing for the most likely future outcome and toward steering the economy away from costly "dark corners" and worst-case scenarios. The book covers all aspects of the comprehensive policymaking framework, from the decision-making model and analytical framework to policy communications and human capital development. In a new global order of high and persistent uncertainty, risk management-based monetary policy represents central banks' most prudent path to achieving and maintaining price stability.

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The development of the framework would not have been possible without the widespread support of CBA staff and leadership across depart-

¹ These staff members also prepared several chapters, or sections of chapters, within this book. Their individual contributions are noted in footnotes at the beginning of these respective sections.

ments. This includes colleagues in Human Resources (Ani Kirakosyan and Anush Stepanyan), Strategy (Vahagn Grigoryan, Yeva Grigoryan, and Armine Yaralova), and Financial Markets (Armen Hovhannisyan), among many others.

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Finally, the prudent risk management approach to price stability takes inspiration from Alan Greenspan’s early attempts at thinking about monetary policy as risk management and John William’s thinking around monetary policy under uncertainty.

FOREWORD

Governor Martin Galstyan

In 2006, the Central Bank of Armenia (CBA) was one of the first central banks in our region, and among emerging markets broadly, to introduce inflation targeting and the Forecasting and Policy Analysis System (FPAS). At the time, many doubted whether a transitioning economy like Armenia could successfully implement an approach that had previously been considered suitable primarily for advanced economies.

Over time, however, through sustained investment in institutional capacities and financial system development, the CBA demonstrated that disciplined and prudent policy, based on an unwavering commitment to our price and financial stability mandates, could establish durable macroeconomic stability in our country. Between 2006 and 2024, inflation averaged around 4 percent, in line with our official target.

But beginning in 2020, several developments accelerated sea changes to the global geo-economic order. A complex layering of crises, from the Covid-19 pandemic, to war, to regional geopolitical conflicts and more, fundamentally reshaped the world and policymaking orthodoxy as we knew it. The CBA was swift and sufficiently aggressive in responding to these challenges; we were among the very first central banks to raise interest rates in 2020 in anticipation of rising aggregate demand conditions coming out of the pandemic.

Inflation had returned to target in Armenia in early 2023, allowing us to begin the loosening cycle when many advanced economy central banks

were still raising interest rates to combat inflation. But was this policy success, and our proven track record of price stability, enough to guarantee similar outcomes in the future? In a world of growing precarity and uncertainty, would our pre-existing policymaking frameworks continue to serve us well?

We began to ask fundamental questions about the nature of monetary policy and the frameworks we use to make and communicate policy: is monetary policy about forecasting the “most likely” future? Or is it fundamentally about something else: about doing whatever is necessary to prevent the economy from, in the words of Olivier Blanchard, sliding into “dark corners?” For us, the answer was clear. Monetary policy, is in essence, an exercise in risk management, where the job of the central bank is to do whatever is necessary to avoid worst-case outcomes and maintain macroeconomic stability in the face of complex shocks and uncertainty.

In 2022, I had the honor of presenting the initial outlines of the risk management approach to monetary policy at the IMF Annual Meetings in Washington, D.C., during the Governor Talks. Over the next eighteen months, our internal team—supported by world-class advisors including former IMF staff, John Taylor, Athanasios Orphanides, Larry Summers, and others—worked to transform this theoretical concept into a fully operational framework. This was a time when many leading economic and policymaking minds, including James Bullard, Ben Bernanke, Christian Hawkesby, and Lawrence Summers, had begun advocating for changes to existing approaches to monetary policymaking to better respond to a world of uncertainty. Our development of the PRMAPS framework was very much a part of this broader global discourse to reform monetary policy. Notably, Ben Bernanke’s 2024 review of the Bank of England was perhaps a watershed moment for advanced economy central banks to move towards more transparent and systematic policymaking frameworks that could better deal with the problem of uncertainty.²

² Laxton, Igityan, and Mkhatrihshvili (2025) responded to Ben Bernanke’s review by highlighting the importance of endogenous policy credibility being a pillar of any new monetary policy framework.

Our key contribution to this discourse is introducing a systematic and institutional framework for monetary policy as risk management, covering everything from institutional arrangements to analytical frameworks to communications and transparency. The highly institutionalized and systematic nature of this framework has helped dispel one of the chief problems associated with risk management decision-making, namely, its tendency to veer towards pure discretion.

In 2024, we formally launched the prudent risk management framework. From the first policymaking round of 2024, the framework became fully embedded in our analysis, decision-making, and communications. In 2025, building on our strong institutional foundations and consistent record of performance, the CBA took another decisive step forward by lowering the inflation target to 3 percent.

At the time, many doubted whether a small, upper-middle-income country like Armenia could lead the next wave of innovation in monetary policymaking. Was this innovation too much—too soon? Our decisive steps to lead this necessary global change was borne from our experience in maintaining remarkable macroeconomic stability through a period of unprecedented risk and turbulence, and the lessons we learned along the way. As a small country at the crossroads of east and west, old and new, our greatest strategic advantage lies in our ability to innovate, to be agile where others are slow to adapt. We know that growth and development could only come through innovation and reform. This has been our guiding axiom in Armenia, and it is no different in the case of monetary policy. In this sense, the prudent risk management framework is our small but important contribution to improving global policymaking and governance in a rapidly-changing and precarious world.

Yerevan, April 2026

INTRODUCTION

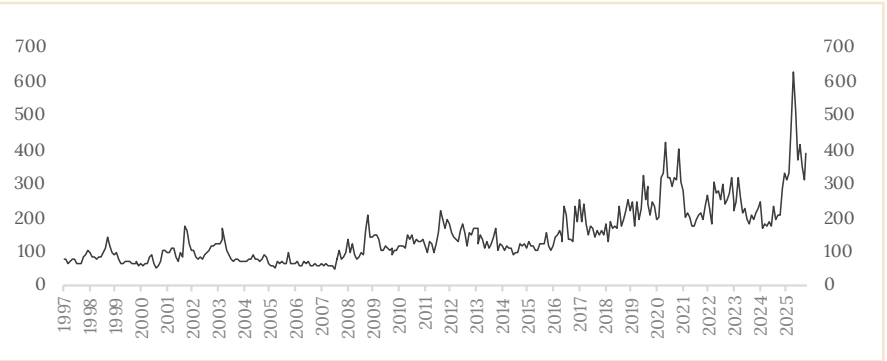
The Central Bank of Armenia has, as its constitutional mandate, the objectives of price stability and financial stability. In service of its price stability objective, the CBA practices inflation targeting, whereby it seeks to achieve the numerical target point target for inflation that is consistent with price stability, on average, in the medium-term. Since 2006, the CBA has practiced a full-fledged inflation-targeting regime, which it operationalized within a structured policymaking framework known as the “Forecasting and Policy Analysis System Mark I,” known as “FPAS Mark I” or simply as “FPAS.” In doing so, the CBA leveraged best practices for key institutional arrangements and operational practices from leading FPAS central banks. This framework and approach to monetary policy provided a solid foundation for the central bank to meet its price stability objective; between 2006 and 2024, average inflation in Armenia was in line with the 4% target.

By the early 2020s, however, sea changes in the global geo-economic landscape brought forth new challenges for monetary policy, prompting a systematic reassessment of the approaches and frameworks used to achieve price stability. In Armenia specifically, the complex layering of multiple crises and shocks—from the Covid-19 pandemic, to the 2020 Nagorno-Karabakh war, to the spillover effects of the Russia-Ukraine conflict, to the forced displacement of Armenians from Nagorno-Karabakh—laid bare the complexities of the emerging new order. But this new order was not unique to Armenia; it was a global phenomenon that could be best summarized in one phrase: the emergence of high and persistent uncertainty as the defining challenge for monetary policy. Many countries,

including advanced economy central banks, began to confront a world of pervasive uncertainty that shook decades of policymaking orthodoxy. Inflation had returned with a vengeance; neutral interest rates were edging up; the global trade order was disintegrating; government debt continued to unsustainably increase; climate change promised a world of persistent supply shocks. This complex layering of challenges marked a new global economic order, with uncertainty as the defining characteristic.

From the perspective of monetary policy, uncertainty poses fundamental problems at three levels. First, uncertainty about economic conditions, stemming from inherent and unavoidable statistical and measurement problems as well as questions about how to interpret this data. Second, uncertainty about the structure of the economy, including how the relationships and behavior of economic agents change in times of high uncertainty relative to “normal” times. Third, the challenge of making real-time policy decisions amid such high uncertainty, where the risk of making policy errors or deferring necessary action increases significantly.

FIGURE 1
Global Economic Policy Uncertainty Index



Source: Scott R. Baker, Nicholas Bloom, and Steven J. Davis

In this uncertain new world, central banks needed to fundamentally re-think their approach to monetary policymaking in order to confront this

unavoidable problem of uncertainty. Continuing with the same misguided approaches that had failed to appropriately address the crises of the past decade would do immense disservice to central banks' public duty to achieve price stability in an effective, transparent, and accountable manner.

Between 2021 and 2024, the CBA developed a prudent risk management framework for monetary policy. It is designed to help policymakers make well-informed decisions under high uncertainty that remain robust across a range of plausible outcomes. To support this objective, the prudent risk management approach relies on the systematic use of multiple scenarios, where analysis, policy deliberations, and communications are structured around assessing a variety of scenarios in response to uncertainty around current economic drivers, underlying economic forces, and future economic developments. The prudent risk management approach explicitly acknowledges this multifaceted uncertainty as, in the words of Alan Greenspan, "the defining feature of the monetary policy landscape." It represents the first institutional attempt to systematically operationalize a scenario-based approach to manage this uncertainty. In doing so, the prudent risk management approach provides a systematic framework for policymakers to understand and evaluate the key sources of risk and uncertainty that could threaten their ability to maintain price stability over the medium-term policy horizon. Given this risk management framework, policymakers are able to devise policies of "least regret," where the explicit focus of monetary policy is on minimizing the economic and societal losses that could stem from any of these scenarios materializing. This systematic and comprehensive approach to managing risk and uncertainty is the key innovation of the prudent risk management framework. In an increasingly uncertain economic landscape, such an approach is the most prudent course of action to ensure that the central bank can continue to meet its price stability objective, regardless of what risks or shocks may hit the economy.

This intellectual framework for risk management is the foundation of how the central bank thinks about achieving its price stability mandate.

Building upon this foundation, the CBA, in collaboration with colleagues from leading institutions around the world, designed a holistic institutional and operational framework for implementing the prudent risk management approach in practice. This institutional framework, which relates to the institutional arrangements, analytics, procedures, human capital, communications, and other components needed to support prudent risk management in practice, is known as the “Forecasting and Policy Analysis System Mark II,” or “FPAS Mark II.” FPAS Mark II represents the next generation of the Forecasting and Policy Analysis System (FPAS), which was first developed at the Reserve Bank of New Zealand and the Bank of Canada in the 1990s. It builds upon many of the institutional, operational, and procedural foundations of the original FPAS, but with several fundamental changes, each stemming from the practical considerations associated with implementing the prudent risk management- and least regrets-based intellectual approach in practice.

Elements of an Effective Policy Framework

A policy framework is a structured and systematic approach for making public policy that governs institutional arrangements, strategies, decision-making processes, and communications, which together support the decision-making body in achieving its policy objectives in an effective, transparent, and accountable manner. What sets a framework apart, and where it adds real value, lies in the fact that it adds a degree of institutional formality and systematic structure to the policymaking process. These clearly defined and well-communicated objectives, principles, strategies, and processes govern how the institution makes policy, and provides a guide for the public to understand how decisions are made and to hold policymakers accountable for their actions. Without such a framework, policymaking would become an exercise in discretion, with the process and logic for making decisions remaining entirely opaque and impossible to hold accountable.

An effective policymaking framework incorporates the following key building blocks:

- **Policy Objectives:** the ultimate purpose of a policymaking framework is to allow the decision-making body to most effectively achieve its specific policy objectives. Therefore, the most important starting point for a framework is spelling out the institution's policy objectives. The CBA has, as its constitutional mandate, the objective of ensuring price and financial stability. The price stability objective—which falls under the scope of this book—is clearly defined as 3% inflation over the medium-term horizon of three years. Meeting this objective is, on paper, the sole goal of the monetary policy framework. But simply stating the objective is not sufficient; the decision-making body has a duty to provide clarity about how it conceptually *understands* and *interprets* its mandate. To this end, the Board of the CBA publishes a Statement of Long-Run Monetary Policy Objectives, where it clearly spells out its conceptual interpretation of its price stability mandate.³ In this Statement, the CBA clearly emphasizes that price stability is a means to an end of improving living standards and the national welfare over time. The Statement also describes in detail several of the principles that guide how the Board seeks to achieve this objective in practice, described further below.
- **Guiding Principles:** with the policy objectives and their interpretation clearly laid out, the decision-making body must define the principles that drive how it sets policy. In the case of monetary policy at the CBA, policy is guided by a framework of flexible inflation targeting that abides by the following six principles, which are also explained in simpler language in the Statement of Long-Run Monetary Policy Objectives:⁴

³ Refer to Appendix A for the full Statement of Long-Run Monetary Policy Objectives.

⁴ These principles derive from those outlined by Freedman and Laxton (2009).

| Principles of Flexible Inflation Targeting

1. The primary role of monetary policy is to provide a nominal anchor for the economy and placing weights on other objectives must not be inconsistent with providing an anchor for inflation and inflation expectations.
 2. An effective inflation-targeting regime will have beneficial first-order effects on welfare by reducing uncertainty, anchoring inflation expectations and reducing the incidence and severity of boom-bust cycles.
 3. The success of an IT regime is inextricably linked to other policies that make the task of monetary policy easier and more credible and lower the social costs of monetary policy implementation.
 4. Because of the lags in the monetary transmission mechanism, and because of the short-run concern with both the deviation of inflation from its target and the deviation of output from potential, it is neither possible nor desirable to always keep inflation exactly on target.
 5. Given the possibility of conflict between inflation targets and other objectives, central bankers must have a reasonably clear objective for price stability and sufficient independence from the political process to achieve this objective.
 6. There must be effective monitoring and accountability mechanisms to ensure that central bankers behave in a manner consistent with the announced underlying objectives and that monetary policy is based on sound practices.
- **Policy Strategy:** the policy strategy relates to how decision-makers apply the guiding principles to reach the policy objectives. For

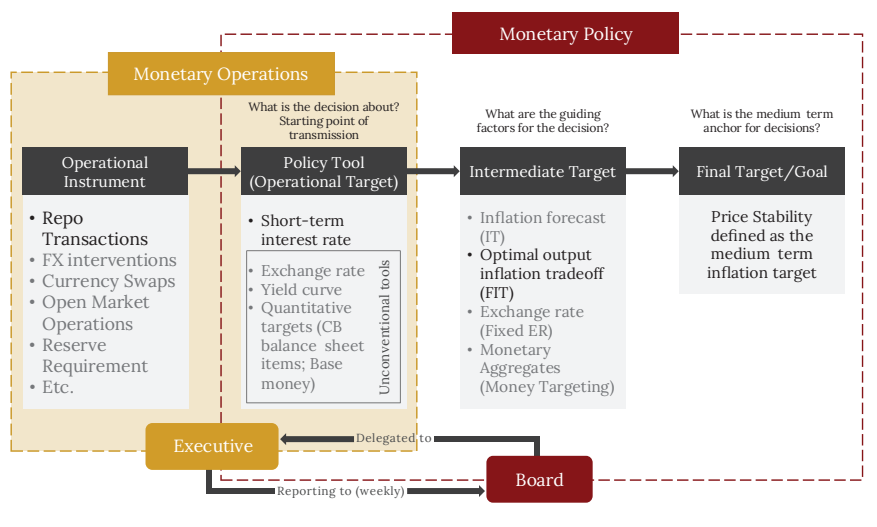
monetary policy, the policy strategy should address the following basic questions: how does the decision-making body decide on the appropriate interest rate? How does the board think about trade-offs when making decisions? What analysis and analytical tools support the decision-making process? What is the culture within the board and the staff, and what relationships and internal processes govern their interaction? These issues are the essential foundation guiding how policy is made, and they must be clearly defined within the policymaking framework if policy is to be credible, transparent, and well-understood. For the CBA's monetary policymaking framework, the prudent risk management approach and least-regrets decision-making model provide a basis for conceptualizing this strategy; these issues are covered in chapters two and three.

- Operational Strategy:** the operational strategy relates to the actual implementation of policy decisions. The following chart explains the relationship between the setting of policy and the actual operational strategy in practice. The job of monetary policy is to adjust the key policy tool, which is the short-term interest rate, which is the key policy tool. The basis for this decision regarding the setting of the policy tool is the intermediate target, defined as the management of the inflation-output tradeoff according to the guiding principles and the policy strategy. By adjusting the policy tool according to the policy strategy, the decision-making body hopes to achieve its policy objective of price stability, defined as the medium-term inflation target. For policy actions to reach their desired objectives, the operational instrument is utilized to meet the operational target in practice. At the CBA, repo transactions are the primary operational instrument that ensures that the operational target of short-term money market interest rate is achieved at or close to the policy-defined rate. Additionally, alternative policy instruments may sometimes be used to supplement the key policy tool; these may include FX interventions, currency swaps, etc. This must be clearly communicated through a strategy for alternative

instruments, which explains when, why, and how these instruments are used by the central bank.

FIGURE 2

Monetary Policy Strategy



Source: Authors

- Decision-Making Processes:** with this conceptual background regarding policy objectives, guiding principles, and strategy in place, the next layer that the framework must address is the process governing how decisions are made. This decision-making process must be well-defined, systematic, institutionalized, and transparently communicated to the public. The decision-making processes include the timetable according to which decisions are made; the processes and workflows that precede each decision; fixed formats for regularly-scheduled deliberations; the types of analysis that support each decision, including well-defined formats and modes for sharing this information; and processes governing internal communications between decision-makers and supporting

staff. At the CBA, these processes and standards supporting the prudent risk management approach are codified within the Forecasting and Policy Analysis System (FPAS) Mark II, which is covered in detail in chapter five.

- **Communications and Transparency:** the ultimate purpose of a comprehensive and systematic policymaking framework is to support high-quality and easily-understood decisions that are better able to meet policy objectives. One of the key pillars that incentivizes good policymaking, and good governance is high transparency, which can be achieved through a robust communications strategy whose primary purpose is to make explicitly clear exactly how and why the decision-making body arrives at each decision. The CBA's monetary policy communications and transparency framework is described in chapter six. In turn, high transparency is the foundation for ensuring that the decision-making body remains accountable to the public whom it is appointed to serve.
- **Accountability** should not be seen as an externally imposed constraint, but rather, an inviolable part of the culture of the institution. To this end, the CBA's policymaking framework includes an accountability framework, detailed in chapter seven, which seeks to proactively engage with external audiences to better explain the conduct of monetary policy and why and how it worked in service of policy objectives.

As an institutional and operational framework for implementing the prudent risk management approach to monetary policy in practice, the FPAS Mark II framework represents a comprehensive institutional setup designed consistently with the key principles of policymaking frameworks (outlined in the preceding box). Specifically, the framework is built around the key principles described on the following pages.

| Scenarios-Based Forward Guidance

The prudent risk management approach emphasizes the systematic use of multiple scenarios in analysis, policy deliberations, and communications. Policymakers consider a full range of macroeconomic scenarios that are policy-relevant, rooted in data, and realistic. Under scenarios-based forward guidance, the central bank builds and deliberates scenarios that are meant to capture important directions that the policy rate path could follow under different economic conditions⁵. These scenarios are based on plausible interpretations of where the economy is today, the forces driving the economy, and sensible assessments of how policy would need to respond to these scenarios. While this can still be applicable in traditional monetary policy set-ups, under the risk management approach, the motivation for scenario analysis derives from the need to manage policy-relevant risks in a manner that ensures the price stability objective is met with minimal cost or “regret,” particularly in periods of high uncertainty. The scenarios are classified within a systematic structure that is intended to spur policymakers to best understand the realistic, data-driven, and policy-relevant issues that they must manage to ensure medium-term price stability. This classification structure includes Case A-type scenarios—reflecting narratives about economic and financial developments that would require a higher interest rate path than what is currently priced in financial markets, in order to guide the economy back to its long-run equilibrium—as well as Case B-type scenarios, which would require a lower policy rate path in the medium-term in order to reach price stability. These scenarios are constructed relative to the market reference scenario, which represents and is consistent with the path of the policy rate that is currently priced into financial markets. Under the prudent risk management approach, the full set of considered scenarios are presented in the Taxonomy of Scenarios. Two of these scenarios (one Case A and one Case B) are quantified through full macroeconomic projections; these scenarios are purely illustrative in nature, intended to communicate to

5 Laxton and Rhee (2022).

markets how the central bank would prudently react to a certain set of economic developments to stabilize the economy and bring inflation back to target. These illustrative scenarios do not represent the most likely future path for policy and for the economy, nor do they define policymakers' preferences about economic narratives or outcomes; they merely illustrate two of several possible scenarios that are particularly useful for communicating with external audiences.

This structured approach to scenario analysis allows policymakers to focus their deliberations and decision-making on understanding the types of risks and uncertainties that would need to be managed to avoid adverse policy outcomes. Moreover, it offers a systematic framework for communicating these plausible developments with financial markets and the public, which is particularly important in times of high uncertainty. It significantly enhances the quality and transparency of central bank communications in explaining the rationale behind its actions and how it might reasonably be expected to act in the future as the economy and underlying risks develop in any number of directions.

Culture of Effective Board and Staff Collaboration

The effective implementation of the prudent risk management approach in practice depends on far more than just well-codified practices and procedures; it requires a strong institutional culture among both decision-makers and economists. While culture is often intangible and immeasurable, the presence of strong leadership and vision from the institution's highest levels combined with systematic arrangements governing internal relationships, processes, and communications can materially support the development of the Board-staff culture required for risk-management policymaking.

For the central bank board, the adoption of risk management policymaking requires a culture of what Daniel Kahneman has termed *adversarial*

collaboration,⁶ which encourages opposing views to coexist to work in service of a broader goal (price stability). This culture is a necessary precondition for risk management because it gives policymakers the freedom to explore many possible scenarios and interpretations amid high uncertainty, while, at the same time, explicitly steering decision-makers away from the type of consensus-seeking and groupthink that is a recipe for policy errors. From the perspective of the staff, supporting this type of Board culture requires maintaining a very high degree of objectivity and professionalism in carrying out their analytical duties. In analyzing any given issue, staff must approach the topic through the lens of uncertainty, positing and testing several competing hypotheses that can provide the Board with the opportunity to consider a range of plausible interpretations on any issue. This type of culture and mode of thinking is consistent with Edward de Bono's conception of "lateral thinking" or "parallel thinking," which emphasizes a systematic process of thinking creatively and critically and moving away from trying to form rigid beliefs, judgments, or biases.⁷ Since the discussion of the scenarios represent Board members' diverse views, beliefs and concerns, the staff act as professional "advisors" to the Board in terms of designing compelling narratives related to those views. To aid these efforts, the policymaking cycle is designed to support much more frequent interactions between the Board and the staff, on at least a weekly basis.

Analytical Framework to Address Uncertainty

The analytical framework underpinning the prudent risk management approach is designed with uncertainty in mind. As a basic, conceptual starting point, any analysis undertaken must explore the fundamental uncertainties regarding any potential issue (e.g. uncertainty about data,

⁶ For further reading on Kahneman's conception of adversarial collaboration, refer to Kahneman and Tversky (1979); Gilovich, Medvec and Kahneman (1998); and Mellers, Hertwig, and Kahneman (2001).

⁷ See Edward de Bono, *Lateral Thinking: A Textbook of Creativity* (1970).

measurement, interpretations, the structure of the economy, agents' behavior, and so on) and consider a wide range of plausible hypotheses and sensible interpretations. This conceptual approach governs how day-to-day current analysis, report writing, and presentations are structured, but it also impacts on the analytical tools and models that the central bank constructs to aid in analysis and deliberations. In a world of high uncertainty, economic agents would not be expected to operate according to the simple logic of linear models. Moreover, the presence of dangerous nonlinearities (regarding endogenous policy credibility, the Phillips curve, and so on) greatly increases the stakes associated with flawed interpretations of the economy and resulting policy errors. Therefore, the analytical models developed for the prudent risk management approach are explicitly designed to incorporate these crucial nonlinearities and better approximate economic relationships and behaviors amid uncertainty. However, while recognizing the importance of robust and sensible analytical tools that drive better discussions, the framework cautions against blindly relying on models as a substitute for critical and analytical thinking.

As described in the CBA's Statement of Long-Run Monetary Policy Objectives, the fundamental role of monetary policy is to provide an anchor for inflation and inflation expectations. The CBA believes that a three percent inflation target for CPI inflation is consistent with its price stability mandate. Although CPI inflation is the best measure of the cost of living, the overall CPI basket of goods and services includes several items that are subject to seasonal fluctuations and global economic developments. The framework therefore highlights the importance of better measures of underlying inflation, such as the prices for non-traded services, to help better identify the degree to which inflation remains anchored to the CBA's objective. The motivation for the flexible/sticky price framework is informed by the seminal contributions of Rudiger Dornbusch (Sticky Price-Exchange Rate Overshooting)⁸ and the development of New Open Economy Macroeconomics (NOEM), largely based

8 See Dornbusch (1976).

on the pioneering work of Maurice Obstfeld and Ken Rogoff,⁹ and the methodology developed by the Atlanta Fed.¹⁰

Human Capital Development as the Cornerstone of HR Model

The only guarantee for the successful implementation of the prudent risk management approach in practice is high-quality human capital. To this end, a cornerstone of the framework is a comprehensive framework for investing in human capital, which prioritizes constant, accelerating growth as staff develop into world-class economists with global expertise. To achieve this purpose, the framework emphasizes comprehensive staff training within a dynamic learning environment, developing a culture of continuous feedback-sharing, eliminating unproductive hierarchies, among others. A well-trained staff with an explicit commitment to excellence and a sense of mission-driven purpose is the cornerstone of high-quality human capital that supports the central bank in achieving its objectives.

The human capital framework, including organizational processes, has been redefined from the ground up in service of these objectives. Staff are divided annually into four teams of six economists, which rotate among four core tasks each quarter (policymaking round, back-up, research, and development). Roles within each team rotate each quarter, while teams shuffle annually. This type of organizational model allows staff to be well-versed, generalist economists, ensuring that staff do not develop an exceedingly narrow, siloed set of skills that are difficult to re-

⁹ While possible references are many, we offer as starting points Obstfeld and Rogoff's seminal papers titled "Exchange rate dynamics redux" (1994), "New directions for stochastic open economy models" (2000), "The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?" (2001), and "Global Implications of Self-Oriented National Monetary Rules" (2003).

¹⁰ See Bryan and Meyer (2010).

place or pass on to other staff. Moreover, by devoting at least half of the year to research and individual development projects, staff can meaningfully grow their skills and minimize work-life imbalances that can arise from being continuously engaged in intensive production cycles.

Highest Standards of Communications and Transparency

As a socially responsible public institution, the CBA believes in transparency and accountability as foundational and guiding principles. Clear and effective communications are the principal means through which the central bank achieves transparency in its policymaking. Moreover, transparency serves as a cornerstone for central bank accountability. Together, transparency and accountability serve as important means for assuring the general public's confidence and trust in the CBA's monetary policymaking process and incentivizing the institution's staff and leadership to do the right thing. The framework emphasizes the highest degree of transparency in its analytics, communications, and deliberations.

The prudent risk management approach significantly elevates the level of central bank transparency by openly communicating the key uncertainties that inform policy decisions. By honestly appraising a wide variety of scenarios and showing clear linkages between economic analysis and policy actions, the central bank can be significantly more transparent about how it arrives at its policy decisions. In practice, this objective is aided by the presence of a comprehensive communications toolkit, featuring a wide array of communications tools and a clear segmentation strategy that allows the central bank to effectively reach all its target markets. Chief among these communication tools is the quarterly monetary policy report, which is published on the same day as the policy decision in both Armenian and English. Further, each and every policy decision is accompanied by a transparency report (published on the same day as the decision) that includes minutes of Board

deliberations, with discussion points attributed to individual Board members; an attributed voting record; as well as one-paragraph vote explanations submitted by each Board member that explains the least regrets logic and risk assessment that drove their decision. This report sets a new global standard for transparency about the policy decision and its underlying rationale among any central bank, and its publication on decision day allows external audiences to have a virtually real-time understanding of how the central bank and its individual board members arrived at the decision. Further, these written communications tools are supplemented by a suite of verbal communication tools, including a Governor-led press conference following each decision, a quarterly Staff-led meeting with financial market analysts, media interviews with Board members following each decision, and a social media campaign targeted at members of the media and the public. These tools are supplemented by regular and systematic efforts by the central bank to engage with financial markets and the public to boost understanding of the framework and monetary policy and to promote greater economic and financial proficiency.

Accountability to Strengthen Public Trust and Credibility

Building upon the above commitment to transparency, the CBA places a high degree of emphasis on accountability to the public whom it is appointed to serve. The CBA believes that accountability is a dynamic process that is part of a broader commitment to good governance and therefore has in place a structured framework for promoting policy accountability. The accountability framework calls for the preparation of an annual accountability report. The report considers the conduct of monetary policy in the previous year in the context of economic conditions and uncertainties; assesses Board communications in the context of the least regrets decision-making model, including the rationale that supported each decision and how the Board's thinking about

the key policy-relevant risks evolved over the year, both as a unit and as individual members; evaluates how financial markets responded to central bank actions and communications; considers policy trade-offs; evaluates public trust in monetary policy and responds to frequently asked questions about the conduct of monetary policy. The framework emphasizes that accountability is a dynamic and proactive process, driven by the Board's own commitment to regularly engage with external audiences to discuss how and why its actions worked in service of its price stability objective, rather than by external pressure or formalities. This approach to accountability is the foundation for good governance incentivizing better policymaking over time, while also enhancing public trust in a democratic society.

Development of the Prudent Risk Management Framework at the Central Bank of Armenia

In its initial stages, the risk management approach was an abstract theoretical idea, motivated by the need to think about monetary policy in times of heightened uncertainty. In fact, several central banks (including the CBA) have in practice relied upon the risk management way of decision-making at various points in history, albeit in an ad-hoc and non-systematic manner. The current initiative has been motivated by the desire to design a framework that can systematically handle the issue of uncertainty. The inspiration for risk management approach, and initial attempts to design a structured framework to institutionalize this approach in central banks, are described in the first working paper by Archer, Galstyan, and Laxton (2022). This paper served as the initial intellectual guidebook upon which the framework's key institutional elements were developed over the following year and a half.

Moreover, the development of the risk management framework derived from ideas laid out in the CBA's 2021 Strategy, where the strategic goal for monetary policy was defined as being “among the countries with the

best monetary policy strategy.” The strategy called for adopting “innovative approaches” to policymaking, enhancing transparency and communications, and supporting greater staff development. As part of this effort, and as the first steps for designing a framework that addressed the issues outlined earlier in the introduction, an external monetary policy framework review was commissioned in 2022. These processes laid the seeds for many of the ideas that were then expounded upon in Archer, Galstyan, and Laxton (2022).

The CBA closely collaborated with external advisors to develop this framework. Chief among them was Douglas Laxton of the Better Policy Project and formerly of the International Monetary Fund, who had played a significant role in the global development of the Forecasting and Policy Analysis Systems in the 1990s and 2000s. During the framework’s development period, the CBA collaborated closely with several thought leaders in monetary economics and policymaking, who provided valuable contributions and feedback on the policymaking framework. These individuals include, but are not limited to: David Archer, who helped put into motion the framework’s initial inspiration and early attempts at operationalization; Lawrence Schembri, who contributed to the development of the communications and transparency framework; Lawrence Summers, who provided important feedback on the framework at several stages; as well as Charles Goodhart, Ioannis Halikias and Robert Ford, who provided continuous feedback on the framework throughout the development process as well as hands-on mentorship to new team members as they trained in the new modes of thinking that the risk management approach required. The framework, therefore, is the outcome of a deep and beneficial collaborative effort between the CBA MPD staff, the CBA Board—including Martin Galstyan, Armen Nurbekyan, Hovhannes Khachatryan, Hasmik Ghahramanyan, Davit Nahapetyan, Artak Manukyan, Levon Sahakyan, and Narek Ghazaryan—as well as the external advisors.

Following 18 months of rigorous framework development, the prudent risk management approach was officially launched at the CBA’s January

2024 symposium. In his keynote speech at the symposium, Lawrence Summers remarked that “the framework [brings] a degree of formality to three philosophical approaches...the systematic use of multiple scenarios and the desire to formulate policies that are robust against a range of outcomes...the attempt to probe possible errors...[and the] need to protect credibility in an uncertain world.” This encapsulates the conceptual underpinnings and motivation behind the new framework. Beginning in the Q1 2024 policymaking round, the CBA began to officially utilize the prudent risk management approach in making and communicating monetary policy decisions.

TABLE 1.
Summary of the Key Characteristics of the Prudent Risk Management Framework at the CBA

#	Pillar	Description
1	Policy Objective & Horizon	Price stability: 3% inflation over medium-term horizon (three years)
2	Guiding Principles	Six principles of flexible inflation-targeting (described in “Box. Elements of an Effective Policy Framework”): 1. Monetary policy’s main role is to anchor inflation and expectations; other objectives must not be inconsistent with this. 2. Inflation-targeting improves welfare by reducing uncertainty, anchoring expectations, and moderating boom-bust cycles. 3. Its success depends on complementary policies that strengthen credibility and reduce the social costs of implementation. 4. Due to transmission lags and the short-run inflation-output tradeoff, keeping inflation exactly on target always is neither possible nor desirable. 5. The central bank must have clear price stability objectives and sufficient independence to achieve them. 6. Accountability is essential to ensure policymakers act consistently with their objectives.

3a	Decision-Making Principle	Least regrets
3b	Intermediate Target	Short-term inflation-output tradeoff
3c	Operational Target	Short-term market interest rate
4a	Ownership of Scenarios	Board develops full set of scenarios in Taxonomy of Scenarios; illustrative scenarios selected at near-random for communication purposes
4b	Staff Organizational Model	Four teams of six generalist economists each; flat organizational structure; constant rotation of roles within and across teams
4c	Staff-Board Cooperation	Weekly analytical briefings to Board by staff; dedicated staff coordinators assisting Board during policymaking rounds; in addition to weekly briefings, three formal Staff-Board meetings during policymaking round (kick-off meeting, scenarios meeting, and final deliberations)
5a	Analytical Tools	Suite of models, including ENDOCRED (core model used to derive scenarios, featuring crucial nonlinearities including endogenous credibility), QPM (used for filtering and for discussing unobservables in a consistent manner), GPM (used for analyzing the external sector), plus various satellite models.
5b	Scenarios	Purpose: To define potential sources of policy-relevant risk that can result in policy errors if not appropriately managed Content: Plausible scenarios not currently priced in the market that might require tighter/looser policy path to prevent economy from sliding into “dark corners” Essence: Realistic outcomes that also cause concern for policy-makers
6a	Communications & Transparency Framework	Written communications (all published on the day of the policy decision): 1. Monetary policy report 2. Executive monetary policy statement 3. Transparency report (attributed Board minutes, voting record, & individual vote explanations by each Board member) 4. Supporting data, chart pack, presentation

		Verbal communications 5. Governor press conference on decision day 6. Technical briefing with analysts' day after decision 7. Board member media interview one week after decision (as needed) Other communications 8. Social media
6b	Accountability Framework	Annual, systematic framework for reflecting on the conduct of monetary policy during the previous calendar year
6c	Framework Evaluation	On-the-go, with annual reflections during the annual symposium each January

This book lays out the conceptual and operational elements of the prudent risk management approach at the CBA. It begins with a history of monetary policy at the CBA since independence, to provide readers with necessary context about economic conditions in Armenia and the global and domestic factors that spurred the development of the policymaking framework. Chapters two, three, and four explore in detail the theoretical underpinnings and motivations of the framework, showing how the guiding concepts of risk management policymaking, least-regrets decision-making, and scenario analysis have been institutionalized within a systematic framework for the first time. Chapter five covers the procedural and operational aspects of the framework in practice, covering the decision-making process; research, surveillance, and analysis; analytical tools; and the human capital framework. Chapters six and seven explore the frameworks for transparency and accountability, respectively.

1.

HISTORY OF MONETARY POLICY AT THE CENTRAL BANK OF ARMENIA¹¹

Independence and Introduction of the National Currency

On September 21, 1991, the Republic of Armenia declared independence, establishing itself as a sovereign and independent state. Despite the collapse of the Soviet Union and its breakup into 15 independent states, the newly formed Armenian republic was not economically independent, which expressed itself most obviously in the continued official use of the Soviet and later the Russian Rubles. Thus, in the immediate wake of its independence, the Republic of Armenia did not make its own monetary policy, but rather, was subject to monetary policy decisions made elsewhere. This matter was further complicated by the immense economic and geopolitical challenges brought on by the dissolution of the Soviet Union: the collapse in output and productivity; high inflation verging on hyperinflation; political instability; civil and military conflicts within and between neighboring states of the former USSR; and, in tandem with all this, a severe lack of public trust and credibility in the state, which continued to deepen.

¹¹ This section includes passages from the book of the first generation Forecasting and Policy Analysis System at the Central Bank of Armenia, published in 2010. The editors thank Hasmik Ghahramanyan, former member of the MPD staff and Board of the CBA, for her extensive contributions in preparing this section.

The beginnings of economic stability in the newly independent Republic of Armenia can be traced to the introduction of a national currency, more than two years after independence. The national currency, known as the Armenian Dram,¹² was introduced relatively late, on November 23, 1993, after most other Soviet republics had already begun circulating their own national currencies. In this period, when other post-Soviet countries had begun using their own currencies and no longer accepted the Ruble, the inflow of the Ruble to Armenia contributed to a rapid growth in prices commensurate with hyperinflation. In 1993 alone, the CPI stood at 11000%.

Several factors contributed to this hyperinflation. After the liberalization of prices in 1992, there were sharp, one-time increases in prices of strategic projects still subject to administrative regulation (e.g. bread, utilities, energy, gas, transport fees, etc.). Other contributing factors included the effects of inflation “inertia” from the final years of the USSR that spilled over into the 1990s; the disorderly developments of foreign exchange market mechanisms; and, accordingly, the process by which domestic prices could converge to international prices. This contributed to upward pressure on the prices for tradable goods, which was followed by slow increases in the prices of non-tradable products. The prices for imported goods (in particular, long-term durable goods) frequently exceeded their international prices by a far greater margin than would be explained by high transportation costs.

Although at this point the CBA adopted a tougher monetary policy stance, several factors stood in the way of regaining stability in prices. In particular, the government was understandably engaged in struc-

12 The Armenian word “dram” is cognate with the Greek “drachma,” and has a long history in ancient and medieval Armenian coinage. The earliest attested Armenian coins date back to the 3rd century B.C., and were issued by the Orontid Dynasty of the Kingdom of Armenia. Beginning in the Hellenistic period and throughout antiquity, successive Armenian kingdoms issued “drachms” and “tetradrachms.” The first usage of the term “dram” as such can be traced to the medieval Armenian Kingdom of Cilicia, which minted silver coins between 1080 and 1375 that were variously known as “dram” and “tagvorin.” See, for reference, Bedoukian (1979) and Musheghyan (1983).

tural reforms, which, at the time, were accompanied with continuous direct lending to the government by the CBA. At the same time, inflation expectations among the public continued to sharply rise, driven by the sobering experience of hyperinflation in preceding years and the expectation that this would continue. This was reflected behaviorally in households' bulk accumulation of goods and basic necessities, in import-exporters' continuous price mark-ups, and so on, all of which contributed to a worsening of the inflationary spiral. Geopolitical problems, in their turn, accelerated declines in money supply and the worsening of inflation and economic decline.

Clearly, the hyperinflation experienced in the earliest days of the fledgling Republic of Armenia had structural causes, which required significant time and resources to adequately address. The introduction of the dram—a critical first step—was followed by the fundamental restructuring of the CBA. In early 1994, the CBA developed an independent monetary policy strategy for the first time, marking the beginning of monetary policy at the CBA.

1994-2005: Monetary Targeting

In 1994, the CBA adopted monetary aggregate targeting as its monetary policy strategy.¹³ This was solidified in 1996 with the adoption of the “Law on the Central Bank of Armenia (1996),” which established low and stable inflation (i.e. price stability) as the primary objective of the CBA.¹⁴ The law strictly limited CBA loans to the government and explicitly stated that monetary policy would be implemented solely through indirect instruments. In addition, the 1996 law set up the foundational role of central bank independence in the effective design and implementation of monetary policy.

¹³ The full-fledged adoption of monetary aggregate targeting can be considered to have begun in 1996, when the Dram was established as a free-floating currency.

¹⁴ Prior to this, the primary objective of the CBA was maintaining domestic and external stability of currency.

To achieve the price stability objective, broad money and the monetary base were defined as intermediate and operational targets for monetary policy. The monetary base includes cash in circulation outside of the central bank and commercial banks' correspondent accounts in the CBA. Broad money includes cash in circulation outside of the banking system and residents' deposits held by commercial banks. The CBA managed the monetary base by impacting banking system liquidity and financial instrument investments by banks. The tools for monetary policy in this context included liquidity-injecting Lombard loans, repo, and open market and FX purchase operations; and liquidity-reducing deposit auctions, repo, and open market and FX sale operations. By managing the process for financial instrument investments, the central bank would secure changes in broad monetary aggregates in line with its plans, in order to reach the desired level of inflation.

The implementation of monetary aggregate targeting allowed the CBA to achieve macroeconomic stability by reducing and stabilizing inflation. Inflation became manageable in the second half of 1994, although year-on-year inflation at year-end stood at 1761%. 1995 was a turning point: economic activity accelerated to a positive 5.7% after the prior years' extreme declines, and inflation stood at 32.2%. Between 1995 and 1998, inflation gradually stabilized after some volatility, and the Armenian economy at last entered a low inflation environment. Low inflation was accompanied by high economic growth (and beginning in 2003, double-digit economic growth), which lasted until the Global Financial Crisis.

While monetary aggregate targeting succeeded in achieving its most pressing objective—stabilizing the economy after the economic collapse and hyperinflation that followed the disintegration of the USSR—it was not without its challenges and complications, especially with respect to the ability to manage the nominal anchor.¹⁵

15 Freedman and Laxton (2009) note the following about the nominal anchor: "In their pursuit of low inflation as the best contribution that monetary policy can make to a well-functioning economy, central banks have typically relied upon a nominal anchor as the basis for their monetary policy. A nominal anchor is considered useful to central banks in conducting mon-

Until 1998, broad money (M2X) served as the nominal anchor, and it included cash in circulation outside of the banking system and residents' deposits held by commercial banks. Beginning in July 1998, the CBA began targeting monetary aggregates in the national currency as well. This became necessary in the wake of the continuous and relatively fast-paced growth in the share of foreign currency deposits, which primarily served as savings for households and businesses. In this context, maintaining the planned level of broad money would limit the desired growth in the demand-generating local currency portion of broad money, leading to a curtailment of aggregate demand and deflation.

This new policy, however, did not eliminate the discrepancy between the operational objective and the nominal anchor. This type of volatility would continuously impact the efficacy of the monetary aggregate targeting strategy, in turn threatening the credibility of monetary policy strategies and the standing of the central bank among the public.

In the absence of a stable relationship between inflation and monetary aggregates, as well as between the monetary base and broad money, other issues emerged that placed the efficacy of the monetary targeting regime in doubt. The CBA increasingly found it difficult, if not impossible, to fully manage monetary aggregates. The CBA was successfully managing the monetary base indicator, but imperfections in the monetary transmission mechanism created difficulties for managing broad money. These included the lack of sophistication of financial markets that were just beginning to develop, the significant shadow circulation of the US dollar, and robust growth in external flows to Armenia beginning in the year 2000. These phenomena were reflected in the

etary policy in several dimensions. It helps clarify both within the central bank and to the public the (intermediate or final) objective of the central bank in carrying out policy. Thus, in the internal deliberations of the central bank, it helps to focus attention on the central objective and prevents situations in which the members of the monetary policy decision-making body are aiming at very different objectives. A publicly announced policy anchor also helps the central bank to communicate externally both its policy goals and the reasons for changes in its policy instrument. Finally, a credible nominal anchor helps focus the expectations of the public on the policy goal and thereby facilitates the achievement of the goal."

robust increase in demand for loans and deposits as well as fundamental changes in the structure of broad money, the level of dollarization, and the velocity of money. Demand for money was subject to real volatility, which reduced its predictability. Due to both the weakening of the monetary base-broad money relationship and the instability of the broad money-inflation connection, broad money continuously deviated from its target level. In this context, because greater priority was given to the primary objective (stable inflation rate) over the nominal anchor, the CBA, at its discretion, would regularly revise the target level for monetary aggregate indicators. Although the CBA would provide explanations to the public and other stakeholders, this would nonetheless create challenges both in managing the nominal anchor and in the public's understanding of the nominal anchor.

TABLE 1.1
Target and Actual Inflation and Broad Money in Armenia, 1996-2005

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Inflation, EOY, %	Target	14.0	10.5	10.0	8.0	5.0	3.0	3.5	3.0	3.0	3.0
	Actual	5.7	21.9	-1.3	2.0	0.4	2.9	2.0	8.6	2.0	-0.2
Broad Money Growth Rate, EOY, %	Target	-	17.0	14.6	14.0	13.8	16.9	8.7	12.7	12.2	18.5
	Actual	35.1	29.2	36.0	13.6	38.7	4.5	28.8	15.1	22.3	28.2

Source: Statistical Committee of the Republic of Armenia; CBA

Thus, if the monetary aggregate targeting strategy implied that the target inflation level could be reached by achieving the target level for monetary aggregates, the data proved otherwise. In Armenia, it had become exceedingly difficult to simultaneously achieve target levels for both inflation and monetary aggregates. The absence of a stable relationship between monetary aggregates and inflation, as well as the

volatility of money demand, were not the only reasons for reviewing monetary aggregate targets. Additional considerations included external shocks, and particularly the impact of non-monetary factors on inflation.

In this environment, monetary aggregates (and in particular broad money) were not serving as a credible nominal anchor. Given the importance of the price stability objective, the CBA clearly had to select a new nominal anchor for the economy, which would be either exchange rate or inflation targeting.

2006-2023: Flexible Inflation Targeting & FPAS Mark I

Adoption of Inflation Targeting at the CBA

Around the time that Armenia and other countries were coming face to face with the shortcomings of monetary targeting as a credible nominal anchor for policy, others were confronting their unfavorable experiences with exchange rate targeting.¹⁶ A number of market issues with exchange rate targeting—including the growing mobility of capital, as well as impacts that asymmetric shocks could have in economies with fixed exchange rates—were casting doubt on the legitimacy of the exchange rate target as a nominal anchor. For the case of Armenia, at the time when the need to adopt a new nominal anchor for monetary policy had arisen, opting for an exchange rate targeting strategy seemed to be out of the question. In addition to the market considerations noted previously, there simply was no obvious choice for which currency to peg the Armenian dram (since no single country simultaneously dominated bilateral trade, had free flows of labor and capital, and was subject to the same types of external shocks). Clearly, neither monetary

¹⁶ Several contemporary examples include the United Kingdom, Sweden, and Finland in the first half of the 1990s, as well as Argentina in 2001 (following the 1999 Brazilian crisis and the 1999-2000 depreciation of the Euro).

aggregates nor the fixed exchange rates could serve as a credible anchor for policy.

Beginning in the late 1980s and early 1990s, several countries (most prominently New Zealand and Canada) had adopted a different approach to achieving price stability, known as inflation targeting.¹⁷ Under inflation targeting, the explicit commitment to a long-term inflation target was seen as a mechanism that could provide a nominal anchor for the economy and help the central bank achieve and maintain low and stable inflation.

Freedman and Laxton (2008) identify six essential characteristics of inflation targeting regimes:¹⁸

1. The primary role of monetary policy is to provide a nominal anchor for the economy and placing weights on other objectives must not be inconsistent with providing an anchor for inflation and inflation expectations.
2. An effective inflation-targeting regime will have beneficial first-order effects on welfare by reducing uncertainty, anchoring inflation expectations and reducing the incidence and severity of boom-bust cycles.
3. The success of an IT regime depends on other policies that make the task of monetary policy easier and more credible.

17 The Bank of Canada learned early on that monetary aggregates were not controllable or necessarily informative for inflation. The language that was used to describe this was that “monetary aggregates abandoned them, instead of them abandoning monetary aggregates.” They also stopped using the term “money supply” and referred to monetary aggregates, in recognition that, under inflation targeting, the central bank targets a short-term policy rate in the near term and accommodates any movement in the demand for money.

18 Note that Freedman and Laxton’s six essential characteristics differ slightly from that of the CBA. The CBA’s definition of inflation targeting regimes and their characteristics is described in the introduction to this book.

4. Because of the lags in the monetary transmission mechanism, and because of the concern with both the deviation of inflation from its target and the deviation of output from potential, it is neither possible nor desirable to keep inflation exactly on target and in practice inflation targeting becomes inflation-forecast targeting.
5. Given the possibility of conflict between inflation targets and other objectives, central bankers must have reasonably clear objectives and sufficient independence from the political process to achieve these objectives.
6. There must be effective monitoring and accountability mechanisms to ensure that central bankers are behaving in a manner consistent with the announced underlying objectives and that monetary policy is based on sound practices.

As early as 2003, against the growing concerns with monetary targeting and the infeasibility of exchange rate targeting, the CBA set out a vision for achieving price stability that involved better management of inflation in times of high economic volatility as well as broader institutional changes that would make monetary policy more transparent, accountable, and understandable to the public.¹⁹ This vision went hand-in-hand with the foundational principles of inflation targeting, and served as the basis for the new approach to monetary policy at the CBA.

The relative youth of both the CBA (as an institution with well-established credibility) and the Armenian economy (in market form) appeared to pose challenges to the adoption of inflation targeting. Traditionally, inflation targeting had been utilized by more advanced countries with well-developed financial markets and sophisticated transmission mechanisms. However, some developing countries had already begun to experiment with “lite” versions of inflation targeting. Inflation targeting-lite seemed more appropriate for countries that were less economically

¹⁹ See “Vision for CBA Development,” approved by CBA Board Decision N. 240, 15 July 2003.

developed; had underdeveloped financial markets; experienced a high frequency of external and domestic economic shocks; had low capacity for dealing with these shocks; did not have developed financial markets; experienced high levels of dollarization; and so on. Under inflation targeting-lite, inflation targeting coexisted with either monetary aggregate targeting or exchange rate targeting (the latter is the case of Israel and Chile). This lite institutional arrangement was intended to allow the central bank to gradually transition to a full-fledged inflation targeting regime while it worked on developing the necessary institutional, operational, and market-related foundations. To that end, inflation targeting-lite was adopted as an interim solution at the CBA, until the appropriate institutional and operational foundations could be laid for shifting to full inflation targeting. This included work towards the development and adoption of a comprehensive policymaking framework (the first iteration of the Forecasting and Policy Analysis System, or FPAS Mark I); the development of human capital, technical, and analytical capabilities to run the operational and communicational elements of inflation targeting; sustained investments in research and training; along with further development of the overall macroeconomic environment, including fiscal policy, financial market sophistication, and so on.

Beginning in January of 2006, the CBA transitioned to a full-fledged inflation-targeting regime. In the early phases of the transition, the CBA would announce its nominal inflation target, publish the 12 month-ahead projected path of inflation (conditional on a constant interest rate), and provide qualitative guidance on how policy could move in the future, but would not publish quantitative projections for the policy rate. The adoption of full-fledged inflation targeting was not without challenges. As noted previously, the low level of economic and financial development in the country created several issues, most of which were fundamental and long-term in nature, and outside of the direct scope of the CBA's influence. But what was within the CBA's scope to address—to make the new inflation targeting regime more effective and viable—was the institutional and operational setup for

conducting policy analysis and making and communicating policy decisions.

Adoption of the Forecasting and Policy Analysis System (FPAS Mark I) at the CBA

The inflation targeting strategy and regime required an entirely new institutional and operational setup at the CBA for monetary policymaking. To this end, since 2006, the CBA began investing in a comprehensive monetary policymaking framework, known as the Forecasting and Policy Analysis System (FPAS Mark I), and introduced the first macro model (QPM) in 2007. In implementing FPAS Mark I, the CBA drew upon the experience of several institutions that had successfully utilized the FPAS, while modifying the institutional and operational arrangements to reflect the specific characteristics of the Armenian economy.²⁰

FPAS Mark I emerged as a systematic framework to support forward-looking decision-making, forecasting, and policy analysis in countries that had adopted inflation targeting regimes. The best-known element of the FPAS Mark I framework was the introduction of a macro-economic-consistent, baseline forecast, published every quarter, covering key elements of the economy and including specific projections for inflation, output, and (sometimes) the endogenous policy rate path. For this projection exercise to be useful in helping the central bank make forward-looking policy, it needed to exist within a broader framework that emphasized transparent communications and regular monitoring and analysis of the economy. The specific operational practices that needed to be developed at the CBA as part of the adoption of FPAS Mark I included the following:²¹

20 This includes the Reserve Bank of New Zealand and the Bank of Canada—the pioneers of inflation targeting and FPAS Mark I—as well as other central banks like the Czech National Bank that had demonstrated the framework’s usefulness in transition economies.

21 While not a comprehensive list, these operational elements of FPAS Mark I at the CBA are consistent with the general principles for FPAS Mark I outlined in Laxton, Rose, and Scott (2009).

1. Developing a system for reporting, databases, and near-term forecasting, containing the most relevant set of macroeconomic variables, to ensure that all staff and board members involved in forecasting and policymaking have equal access to the same information.
2. Implementing processes for regularly updating and sharing new information on a weekly basis, at fixed meetings, with members of the Board, for staff and the Board to understand how the new information would affect near- and medium-term forecasts.²²
3. Developing a quarterly projection model (QPM) of the medium-term economy, reflecting the Board's views about the monetary policy transmission mechanism and the structure of the economy. The QPM would include a policy reaction function and impulse response functions. A dedicated projection team would be responsible for developing, maintaining, and running the models.
4. Producing macro-consistent forecasts on a quarterly basis, including ex-post assessments of risks to the previous baseline that motivate the revised forecast.
5. Providing measures of uncertainty in the forecast, including confidence intervals and fan charts, which can be used to communicate the extent of this uncertainty both internally and to the public.
6. Analyzing specific risks embodied in the baseline forecast and having contingency plans for reacting to new information that arises between quarterly projections.
7. Aspiring for high standards of transparency and accountability through clear and effective communications. This includes the publi-

22 A formal process for weekly information-sharing, known as Weekly Monitoring Meetings, since renamed to Weekly Analytical Briefings, was instituted in 2020.

cation of: a quarterly inflation report with forecasts for key variables; minutes of Board deliberations; and a press release at the time of each decision.²³

The gradual adoption of these FPAS Mark I institutional and operational practices helped support the inflation-targeting regime at the CBA. Of course, this transition did not happen instantaneously, nor did the framework achieve perfect credibility and legitimacy at once. Investing in the FPAS meant making a commitment to continuously invest in institutional development (including human capital, analytical, and procedural improvements) over time. This would be critical both for enhancing the CBA's institutional capacity to deal with risks and shocks facing the economy, as well as for strengthening the credibility of the monetary policymaking regime and framework. A significant review of the policymaking framework took place in 2011-2012, when, in addition to several other reforms, the CBA changed the policy and forecasting horizon from one to three years, began publishing projections based on an endogenous interest rate, introduced a new Core model, and initiated a substantial enhancement of the FPAS.

The Armenian Economy since the Adoption of Inflation Targeting

Since the adoption of inflation targeting in 2006 and the gradual incorporation of FPAS Mark I, the CBA dealt with a continuous succession of macroeconomic and geopolitical crises that required swift policy action. These crises posed real challenges to macroeconomic, price, and financial stability in Armenia. At the same time, in navigating these crises, the CBA took this as an opportunity to build the legitimacy of the policymaking framework. The periods of heightened risk and uncertainty are described in Table 1.2 below.

²³ This was expanded in 2020 to include a Governor-led press conference following each decision.

TABLE 1.2.
Global and Regional Policy-Relevant Crises since the
Adoption of Inflation Targeting in 2006

Period	Crisis
2008-2009	Global Financial Crisis
2009-2012	European Debt Crisis
2014-2015	Russian Financial Crisis
2020-2022	Covid-19 Crisis
2020	Second Nagorno-Karabakh War
2021-present	Russia-Ukraine Conflict
2023	Inflow of Displaced Persons from Nagorno-Karabakh

When the CBA instituted inflation targeting in 2006, both the global and the Armenian economies were in a highly expansionary period, with growth in the double-digits in Armenia through 2007. Oil prices and all commodity prices were high around the world, contributing to the expansion of inflation in Armenia, as the imported part of CPI was quite large. As with other developing economies, Armenia experienced substantial capital flows and foreign investments, resulting in a significant appreciation of the currency of approximately 50% and booming non-tradeable and construction sectors. During the second half of the 2000s, Armenia experienced a major real estate boom, with for-sale home prices growing dramatically (by over 250% between January 2003 and September 2007), and with the construction sector representing a significant 25 percent share of GDP. Along with strong domestic demand conditions in this expansionary period, Armenia was also subject to high imported inflationary pressures, in part driven by high global commodity prices and the high share of imported goods in the CPI. In the context of robust demand conditions, high inflation, and a new policy regime, inflation expectations ratcheted upwards as well. The main challenge for monetary policy in the pre-Global Financial Crisis period

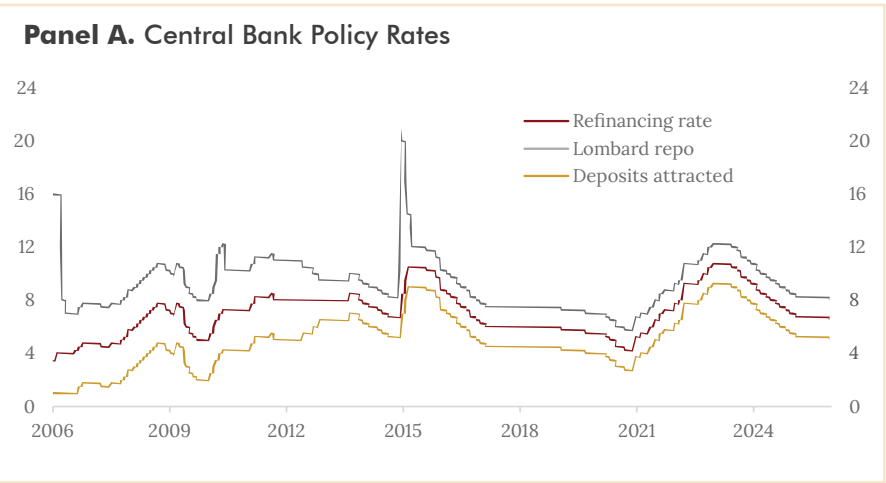
was to appropriately respond to domestic demand expansion, given capital flows and currency appreciation, and to re-anchor medium and long-term inflation expectations to the 4% target.

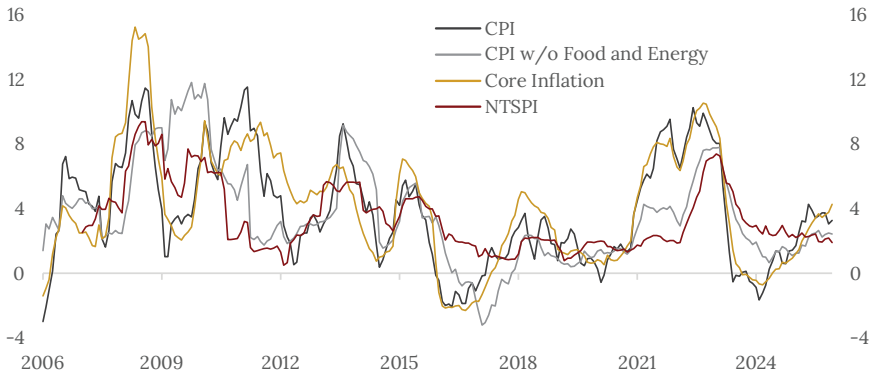
Armenia was significantly impacted by the global demand contraction caused by the Global Financial Crisis. As with other emerging economies, Armenia faced a significant reappraisal of the country risk premium, resulting in a sudden stop in capital flows and consequent contractions in demand. The sharply negative (double-digit) economic contraction of 2009 was followed by a period of slow recovery. Due to the significant accumulation of public and private debt in order to support the growth that appeared to suffer from structural problems, the sustainability of debt levels became a key question, reflected in a persistently high risk premium. This reflected the challenges for the CBA at that point in time, where the necessity for an easier monetary policy stance to support the recovery of the contracting economy was accompanied by an upward reappraisal of the country risk premium and neutral rate, hindering the possibility of having a lower policy rate.

After a slow recovery marred by the European Debt Crisis and numerous supply shocks, the end of 2014 brought a new wave of challenges. Geopolitical conflicts in Crimea and the Donbas, along with the global oil price shock of 2014, resulted in a worsening outlook for the Russian economy. The resulting sharp depreciation in the ruble spilled over to other regional currencies, including the Armenian dram. Depreciation pressures in the domestic currency market, coupled with the speed at which prices of certain goods grew on the back of a depreciating local currency, caused inflation expectations to destabilize. This led to a sharp increase in demand for goods and foreign currency, amplifying inflationary pressures and jeopardizing policy credibility. The monetary policy response was immediate and sharp, with substantial tightening of financial conditions (more than 12 percentage points increase in the effective operational policy rate since the end of 2014), which helped to contain inflationary pressures and stabilize financial markets.

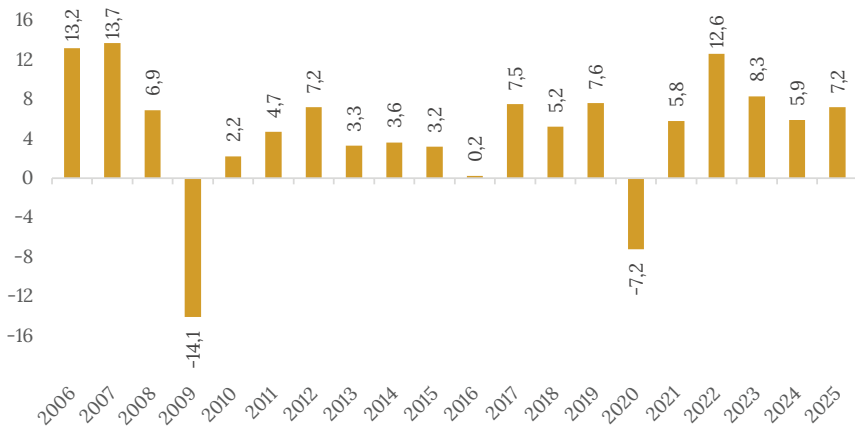
Given the high degree of uncertainty, inflation expectations and risks for destabilization continued to remain high. Even though headline inflation had begun to decline, and the period beginning in 2015 was, on its own, deflationary, the CBA remained concerned about inflation expectations potentially remaining high and above target levels. As a result, the central bank adopted an opportunistic disinflation stance beginning in 2015, leading to inflation expectations decelerating significantly. This process was essential in building public trust and credibility in the policymaking regime and framework. It also demonstrated the CBA’s commitment to acting preemptively and opportunistically to enhance its credibility and bring about price stability. This strengthening of trust and legitimacy in the framework over the second half of the 2010s would prove essential for navigating the immense challenges, risks, and shocks facing the Armenian economy in the early 2020s.

FIGURE 1.1.
Development of the Armenian Economy since the Adoption of Inflation Targeting in 2006



Panel B. Inflation in Armenia, Year-over-Year

* NTSPI refers to Non-Traded Sticky Price Inflation, an alternative measure of inflation developed at the CBA

Panel C. Real GDP Growth, Annual, Year-over-Year²⁴

Source: Statistical Committee of the Republic of Armenia; CBA

24 Data for 2006 to 2022 based on Statistical Committee of the Republic of Armenia (SCRA). The SCRA provides the following note: "Since 2015 the GDP is compiled by the Statistical Committee of RA according to System of national accounts 2008 (SNA 2008) international standard. GDP indicators for the period 2012-2014 also have been revised according to SNA 2008 which are not comparable with the GDP indicators in this [dataset] for the period 1990-2011 which had been compiled according to System of national accounts 1993 (SNA 1993) standard."

The early 2020s brought about an unprecedented succession of crises. The Covid-19 pandemic generated incredible disruptions to global supply chains, which, coupled with social distancing requirements for workers, represented major supply shocks. At the same time, the crisis generated parallel demand shocks, with consumers demonstrating hesitation to maintain pre-Covid levels of spending in the face of the public health crisis and restrictions on their free movement. These shocks were further compounded by war against Nagorno-Karabakh in the autumn of 2020, in the midst of the pandemic.

The war resulted in over 3,800 combat deaths in Armenia alone, as well as the forced displacement of tens of thousands of civilians. The combination of war and pandemic created a sharp drop in demand for goods and services, leading to a decline in the prices of certain items in the CPI basket. While the double shock also affected the supply side of the economy and damaged some part of potential, the demand deficiency dominated in the initial phase, and general consumer price inflation slowed between March 2020 and March 2021, in line with similar trends at the global level.

At the end of 2020, although inflation was still below the target, the CBA was growing concerned about the prospect of a quicker-than-anticipated recovery of pent-up demand once public health measures eased and a resulting potential increase in inflation expectations. The CBA thus acted in a proactive and forward-looking manner—as one of the first central banks in the world—to raise interest rates, by one percentage point in December 2020 when inflation was still below the 4% target. The CBA made clear that maintaining its credibility and commitment to price stability were of paramount importance, and that it stood ready to act prudently (and even preemptively) to mitigate any risk that threatened this. The continued tightening of policy helped to control inflation and contain expectations. Thus, by February 2022, inflation in Armenia stood at 6.5%, down from its peak of around 10% and was gradually drifting down to the target, while in most countries inflation continued to accelerate.

Just as inflation was beginning to come under control, the sharp escalation of the Russia-Ukraine conflict in February 2022 created new challenges for monetary policy and the economy at large. At that point, there existed significant uncertainty about what economic consequences this conflict would have for Armenia, with vastly different implications for policy. The traditional view (based on a backward-looking comparison to previous shocks emanating from Russia) was that this would result in a negative external shock to Armenia, given the close economic ties with Russia and the experience of the 2014 crisis. On the other hand, an alternative view held that some of the spillover effects would create growth opportunities for Armenia, given the potential for new flows of capital, people, entrepreneurship, tourism, and so on.

In this period—just as in the preceding crises—policy decisions would have to be made amidst high uncertainty, with no obvious answer as to which interpretation would prove to be correct. The CBA made its decision according to a “least regrets” logic, emphasizing that the costs of failing to anticipate a positive demand shock and unnecessarily cutting rates would outweigh the costs of a potential policy error associated with the opposite scenario materializing. The CBA clearly communicated to markets the level of uncertainty and potential for divergent outcomes, at the same time emphasized that its decision-making stemmed from a steadfast commitment to acting prudently to maintain stability.

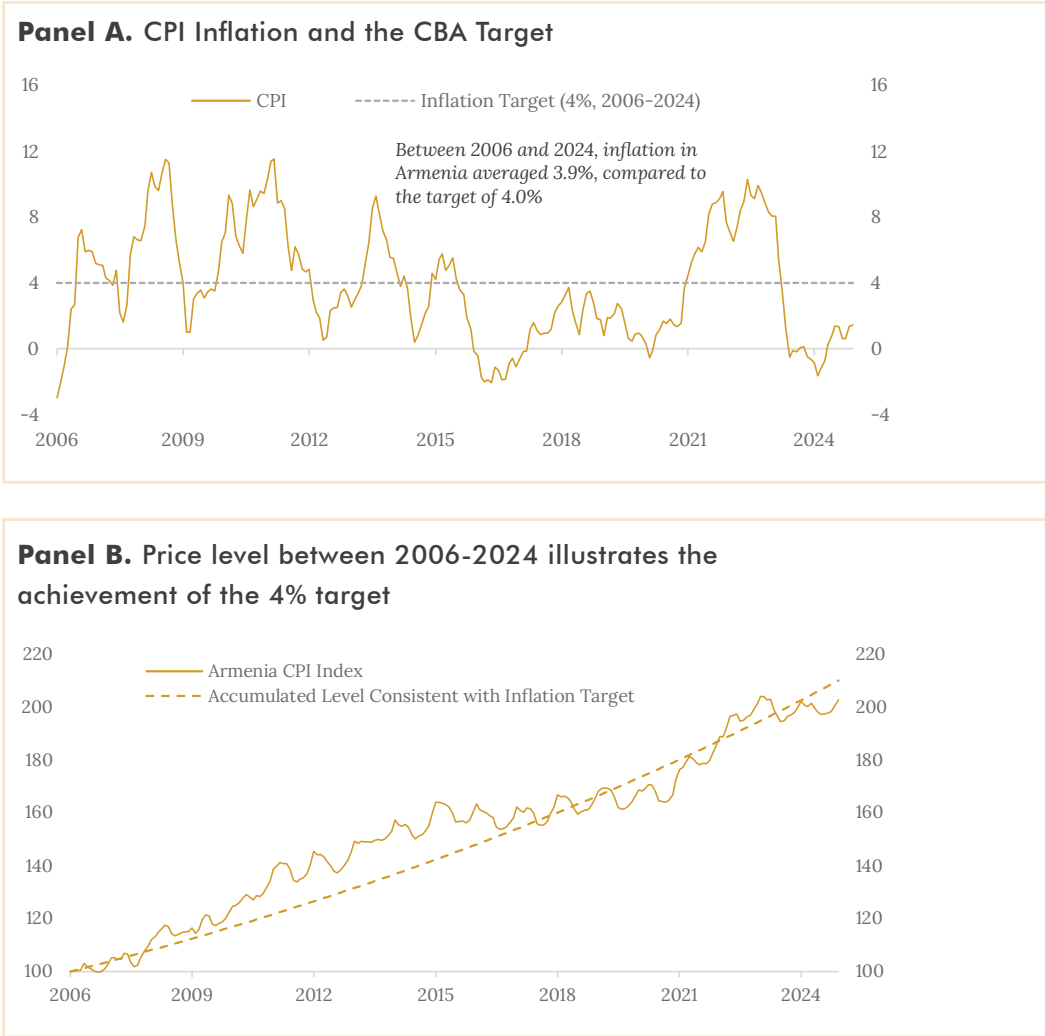
As the events unfolded, it quickly became apparent that the alternative interpretation the scenario that the Board of the CBA sought to manage by raising rates better aligned with what was occurring. Over the course of 2022 and extending into 2023, Armenia experienced a significant inflow of international visitors and capital. This represented a broad external demand shock that drove growth in services, construction, and exports and significantly accelerated the development of the information technology sphere, while also generating new inflationary pressures and overheating in the labor market. In these robust growth conditions (where growth comprised 12.6% in 2022), domestic demand conditions expanded as well, spurred by high consumption sustained

by growing wages, spending of excess savings accumulated during the Covid period, and to a lesser extent expansion in consumer loans. These developments required a continued aggressive tightening of the policy stance. In total, since the first policy rate increased in December 2020, the CBA increased the policy rate by 650 basis points, to a peak of 10.75% in December 2022.

In 2023, as global commodity prices continued to cool, global demand conditions began to slacken amidst risk of global economic slowdown and weakening financial conditions in many of Armenia's key trading partners. As the combination of declining external inflationary pressures, as well as the gradual transmission of the restrictive effects of the CBA's policy, flowed through the real economy, headline inflation began to decline in the spring of 2023, dipping below target levels and even into negative territory by mid-2023. The Board of the CBA, in June 2023, began its loosening cycle, gradually and conservatively decreasing the policy rate. The Board's official communications and rationale emphasized that while inflation was below target, the persistence of several upside risks, including risks of still-elevated inflation expectations, uncertainty about the neutral rate and country risk premium, and above-potential output, warranted a more conservative approach to the loosening cycle.

During this 4% inflation target era, the CBA was highly successful in achieving its inflation objective. Figure 1.2 illustrates how Armenia's price level since 2006 has oscillated around the price level implied by a 4% target. Effectively, while the CBA has been flexible to allow inflation to deviate from the target periodically, the CBA has achieved its 4% inflation objective, on average.

FIGURE 1.2
CBA's Achievement of the Price Stability Target, 2006-2024

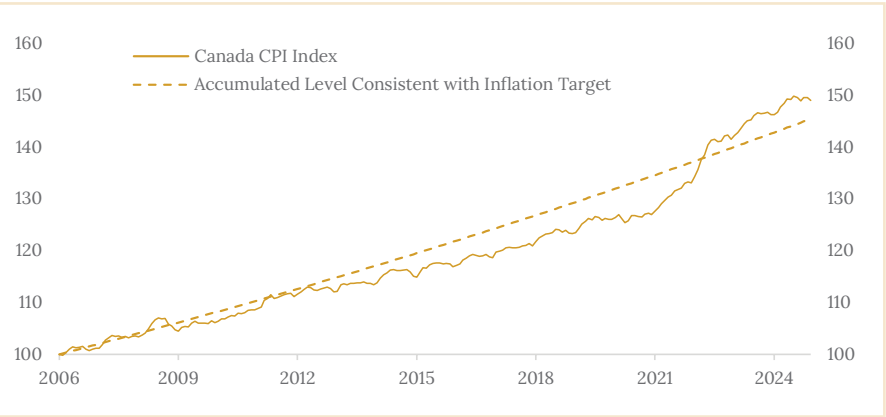


Source: Statistical Committee of the Republic of Armenia CBA

However, moving towards a lower inflation target offers potential benefits. While Armenia's inflation history has oscillated around the 4% target, its variability remains large. This contrasts with the 2% inflation target countries such as Canada who have also maintained a price level

consistent with its 2% inflation target but have exhibited much less variability. Less variability means inflation is more strongly anchored to the target and the central bank can work less to achieve price stability and avoid larger booms and bust cycles.

FIGURE 1.3
Other Country Experiences Illustrate the Benefits of a
Lower Inflation Target



Reduction of the Inflation Target in 2025 that Better Reflects the Commitment to Price Stability²⁵

In 2025, the Inflation Target was reduced from 4% to 3%. This reduction in the target ushered in a new era for the CBA in its commitment to being among the leading central banks in the world.²⁶ Drawing on international experience, joining the “club” of central banks targeting 2–3% inflation reflects the CBA’s aspiration to match the standards of institutions known for credibility, transparency, and policy discipline. At the same time, however, this shift is far more than a symbolic move as it carries meaningful implications for the welfare of Armenians.

²⁵ For further reading, refer to Avetisyan, Igityan, and Papikyan (2024).

²⁶ Ibid.

The CBA's decision was guided by the conviction that a lower inflation target would strengthen macroeconomic stability, bolster purchasing power, enhance investment attractiveness, and reduce volatility in financial and currency markets. The main arguments supporting this transition are summarized below.

- **Greater stability and confidence:** International evidence shows that low inflation tends to be accompanied by low volatility, stronger growth, and higher investment, reflecting reduced uncertainty about monetary policy. Stable inflation and predictable policy are essential foundations for long-term investment, consumer confidence, and sustainable growth.
- **Lower interest rates and risk premiums:** A credible low-inflation regime anchors expectations and supports lower nominal and real interest rates under given risk conditions. As inflation volatility declines, risk premiums fall, creating favorable conditions for long-term investment and financing.
- **Reduced financial and exchange-rate volatility:** Low and stable inflation fosters a more predictable macroeconomic environment, strengthening confidence in financial markets and reducing the amplitude of currency fluctuations.
- **More predictable price-setting for regulated goods:** Stable inflation lessens the need for frequent adjustments to administered or indexed prices, allowing a more orderly and transparent process for setting prices of strategic goods and services.
- **Lower business costs and higher productivity:** When inflation is stable, firms face fewer costs related to monitoring prices, adjusting contracts, and managing uncertainty. This improves resource allocation, raises productivity, and supports long-term growth.

The CBA's implementation of its new monetary policymaking framework in 2024 provided a solid foundation for the CBA to pursue a lower inflation target that requires strong public confidence in monetary policy. The 3% target is accompanied by a variation band of ± 1 percentage point, consistent with the framework's emphasis on uncertainty and non-linear responses of monetary policy. The variation band does not imply leniency toward the 3% target. Rather, it reflects the flexibility of the policy response needed to achieve it, as well as the fact that the CBA does not target inflation on a period-by-period basis or seek to always achieve the target of 3% in every period. Regardless of the extent of deviation from the target (whether within or outside the band), the CBA always seeks to design monetary policy such that inflation returns to the target over the medium-term horizon. Additionally, the variation band should not be treated as hard-edged. That is, the movement of inflation to the boundaries of the range or band should not be treated as requiring an exceptionally strong interest rate response. It should be thought of as an interval of uncertainty, not an interval of indifference.

2.

POLICY IMPERATIVES IN THE AGE OF UNCERTAINTY: REINVENTING THE MONETARY POLICY FRAMEWORK

Armenia faced a successive layering of crises in the early 2020s, from the global Covid-19 pandemic, to the 2020 Nagorno-Karabakh war, to the spillover effects of the Russia-Ukraine conflict, to the ethnic cleansing of Nagorno-Karabakh and subsequent flow of over 100,000 refugees to Armenia. Of course, this “cocktail” of crises was specific to Armenia and its regional positioning. But, in a broader sense, this was merely a manifestation of a broader global trend—of a pervasive and unavoidable reality of a world with greater uncertainty—that was not unique to Armenia. Many countries, including advanced economies with unrivalled pedigrees of institutional policy excellence, began to confront a world of growing uncertainty. Inflation persistence in advanced economies since 2021, the rise of AI, fiscal unsustainability, upward pressure on global neutral rates, growing geopolitical tensions, climate change, and a disintegrating global economic and trade order are creating an increasingly uncertain landscape that is significantly complicating central bank’s ability to meet their primary objective of maintaining price stability.

From the perspective of monetary policy, the emergence of an uncertain global order reveals two fundamental truths that policymakers always face, which the relative calm of the Great Moderation may have temporarily masked. First, the macroeconomic and other environments are always fraught with significant risks, the manifestation of which can threaten price stability in the absence of an aggressive and agile

policy response. Mismanaging these risks and failing to assign sufficient weight to scenarios that can result in worst-case outcomes can have disastrous impacts on price stability, central bank credibility, and social welfare. The fundamental job of the central bank, therefore, is to ensure that these “dark corner” scenarios never materialize.²⁷

Second, monetary policy decisions are always made amidst high uncertainty, and the central bank—like any other market agent—cannot, with any degree of certainty, anticipate how the future will unfold. In particularly turbulent times, when the latent risks pose greater dangers to near- and long-term stability, this uncertainty is obvious and easily understood by lay observers. But even in relatively “normal” times, uncertainty about current economic developments, their drivers, and where they might be headed remains pervasive. As Greenspan has famously emphasized, this basic uncertainty about current and future economic conditions is an unavoidable and permanent feature of the monetary policy landscape. If this uncertainty cannot be avoided, policy must find a way to adapt to it and make high-quality decisions amid uncertainty.

What are the main characteristics of this fundamental uncertainty that so complicates the task of monetary policy?²⁸ First, uncertainty about the state of the economy and current economic conditions. The first aspect of this uncertainty stems from the basic fact that data for many economic variables are merely rough approximations of complex developments, rather than scientifically perfect measurements. Beyond this philosophical challenge, data for many key economic variables is often incomplete, published with a significant lag, or frequently revised. In emerging economies, this fundamental incompleteness of economic

²⁷ This argument is further explored in the following chapter.

The term “dark corners” stems from Olivier Blanchard’s landmark 2014 article, *Where Danger Lurks*. Blanchard defines dark corners as “situations in which the economy could badly malfunction.” Building on this interpretation, we additionally emphasize dark corners as worst-case scenarios that result in immense economic and social cost, and that are exceedingly difficult and costly to correct. Good monetary policy prevents dark corners from materializing, or, if this is not possible, minimizes the fallout associated with such a scenario.

²⁸ These ideas are expounded upon in Issing (2002).

data is further complicated by statistical agencies' more limited resources relative to their peers in advanced economies, which limits the scope and breadth of available data. The second layer of this uncertainty relates to the question of interpretation. Economic analysis that supports policy is a blend of art and science, leaving significant room for interpreting these economic variables. Various permutations of data points can support a multitude of interpretations about underlying economic conditions, each of which may be valid and have important implications for policy. This issue becomes especially challenging when attempting to estimate unobservable variables that are essential for setting policy, such as potential output and the output gap, the natural rate of unemployment, the real exchange rate trend, the neutral interest rate, and so on. Not only is the data itself problematic (e.g. labor market data in Armenia is incomplete, delayed, and often contradictory, while the structural characteristics of growth since 2022 mean that headline GDP data cannot simply be taken at face value), but economists must apply a healthy dose of judgment when estimating unobservable variables like potential output, productivity, or trend appreciation.²⁹

29 A good example of this dual issue is GDP data in Armenia in late 2023/early 2024. Initial, official estimates placed GDP growth in Q4 2023 at 8.7% and Q1 2024 at 9.2%. In this period, a significant driver of this growth was gold and jewelry manufacturing, which increased by orders of magnitude despite being an imperceptible share of GDP growth in previous periods. For analysts and policymakers, this raised an important question: had Armenian manufacturing capacities increased in such a dramatic fashion in a short period of time, and was the economy truly operating so highly above its potential? Or were other factors at play? Rigorous analysis, including field research, analysis of imports of machinery, discussions with statistical agents, and so on, suggested that this was not fundamentals-driven economic growth in the traditional sense, but rather, an issue with how to properly account for short-term (and unprecedented) phenomena in the GDP data. Owing to certain short-term opportunities for the trade of gold and jewelry through Armenia, these items were imported to Armenia, slightly refashioned, then exported to third countries. The value added seemed to be much lower, near zero, than what the GDP data suggested. This suggested that actual GDP growth was much lower, that the economy was not operating so far above its potential, and that impacts on aggregate demand conditions from these short-term developments were negligible (given its high concentration among a few firms and its limited income effect). However, the official data was only updated several quarters later, with Q4 growth significantly revised down to 6.4%. This episode offers several important lessons. First, data itself is an imperfect approximation of complex developments, and the headline number cannot necessarily be taken as a given. Second, even after conducting robust analysis, this data could still have been interpreted in several ways, and the implications on unobservable estimates like the output gap and productivity growth would have had enormous consequences on policy decisions. If this growth had been ascribed as true growth, and the output gap had been seen as being widely positive, policy could have

Of course, the central bank has a duty to carry out the most rigorous and comprehensive analysis possible to gain a better understanding of actual economic conditions (including through supplemental analysis including field research, surveys, counterfactual analysis, and so on), but a perfect, scientifically accurate assessment of complex social phenomena will never be possible. Given this dual challenge of data quality and interpretation, assessments of the current and underlying state of the economy are always rife with uncertainty. These unobservable variables have enormous consequences on policy decisions, and errors regarding assessments of the relative position of the economy can result in an unnecessarily tight or loose policy stance. This type of avoidable policy error can quickly result in a mismanagement of the short-term inflation-output tradeoff and a loss of central bank credibility, leading to adverse societal consequences and inhibiting the central bank's ability to achieve price stability.

The second layer of uncertainty relates to uncertainty about the structure of the economy, including the monetary policy transmission mechanism and the relationships and behavior of economic agents.³⁰ Central banks rely on macroeconomic models that attempt to approximate the structure of the economy and the relationships between actors within it, but these rough approximations are always going to be imperfect, and can never properly capture how economic agents actually behave in real time, particularly amid uncertain economic or political conditions. This problem is especially apparent in traditional, linear economics, which fails to adequately reflect the problem of uncertainty or how economic agents make decisions amid uncertainty, when “unknown unknowns” throw a wrench into traditional assumptions of rational expectations. But in addition to the fact that agents very often deviate from the “rational” behavior that underpins the conceptual and theoretical background

become unnecessarily restrictive, hampering demand and growth conditions and resulting in adverse societal outcomes.

30 For academic discussions on these topics, refer to landmark works by Hyman Minsky (1996) in “Uncertainty and the Institutional Structure” and Tom Sargent (1993) in “Bounded Rationality in Macroeconomics.”

of current, mainstream monetary policymaking, agents' behavior tends to adjust in often unpredictable ways when confronted with increasing and significant uncertainty. This plainly highlights the need to more deeply consider nonlinearities—theoretically, in models, and in policy discussions—that better reflect actual relationships and behaviors in the economy amid uncertainty.³¹ In a world of high uncertainty, these nonlinearities are precisely where policymakers must be paying the closest attention; a failure to appreciate the nonlinear nature of the inflation-output tradeoff, or central bank credibility, or the behavior of economic agents amid uncertainty more generally, can very easily throw the economy into dark corners that require excessive economic and social cost to correct.

These nonlinearities include the relationship between inflation and output (e.g. Phillips curve) and credibility (e.g. endogenous versus exogenous), particularly in terms of how welfare implications are understood. Policy in a linear world—where the relationship between inflation and output is assumed to be linear, and where policy credibility is exogenously perfect—appears to be a rather simple task, where the consequences of policy errors are not very costly, and the welfare implications are only second order. In instances where central banks make policy errors (which could be a common experience in times of high uncertainty)

31 As an aside, it is worth mentioning that the problem with uncertainty in analytical frameworks can't simply be solved by developing better analytical tools. Nonlinear models may be better adapted for an uncertain world, but they should not be seen as a cure-all that can tell policymakers what or how to think. Many institutions have placed undue emphasis on what can be accomplished using models and how their outputs can be applied. Rather than being realistic about what models actually are (vastly oversimplified representations of a hypothetical reality that embody a multitude of assumptions and judgments) and how they ought to be used (as one of several tools and reference points that economists use to make judgments about the economy and implications for policy), policymakers and economists alike tend to overstate the accuracy and applicability of models and their outputs. At many central banks, common responses by economists and policymakers to complex economic questions might begin with expressions such as "the model says ...", therefore ..." or "the Kalman filter says ...". In this context, models have become a substitute for critical economic thinking. Excessive emphasis is placed on how models are constructed and what their outputs are, but not enough attention is paid to the underlying economics. In shifting the emphasis to nonlinearities, the authors underscore that this must take place in tandem with a shift to the underlying economics rather than continuing to treat macro models as panacea.

that result in an adverse inflation-output tradeoff (e.g. unemployment rises higher and is more persistent than it otherwise would have been), policymakers can simply blame “bad luck” or shocks instead of their own flawed policy choices. However, policy errors can be extremely costly in terms of their first-order welfare implications, and these processes unfold in nonlinear ways.³²

Both analytical research and experience have demonstrated the nonlinear relationship between output and inflation. This nonlinearity is particularly stark when excess demand pressures are higher; as the output gap gets closer to the maximum possible excess demand pressures of the economy, the slope of the Phillips curve gets steeper and steeper.³³ From a real-world, policy perspective, understanding this nonlinearity and incorporating it within analytical toolkits is critical. If policymakers allow inflation to persistently remain high and spiral out of control, and allow inflation expectations to become de-anchored from the target, policy would need to be tighter into the future, and the average level of unemployment would be higher into the future as well. In other words, the convexity of the Phillips curve would mean that the first-order welfare implications of not acting sufficiently aggressively with policy in response to high inflation, in terms of a higher average level of unemployment, would be meaningful.³⁴

The other crucial nonlinearity that most linear approaches ignore, with adverse first-order welfare implications, is policy credibility. Credibility is equivalent to the reputation that the central bank has developed by

32 This idea is explored in depth in Isard and Laxton (1996).

33 Refer to Kostanyan et al (2022b) and (2022c). This follows the logic of the relationship between output gap and unemployment gap set forth by Okun’s Law, in that a very high output gap would result in an unsustainably low unemployment gap.

34 The nonlinearity of the Phillips curve is forcefully presented in Debelle and Laxton (1997). Further research demonstrates issues with how linear models and prefiltering affect how the Phillips curve is understood. Laxton, Rose, and Tambackis (1999) show that when researchers pre-filter data with any measure of central tendency (e.g. time trends, HP filter, or any univariate filter), this will always bias against finding asymmetry. Asymmetry implies that the actual gaps will not be symmetric (i.e. MP will have to generate excess supply to offset inflationary effects of excess demand).

specifying a numerical objective for long-term inflation, and by whether or not it has been able to achieve that target on average over time and anchor inflation expectations to that target.³⁵ The public will obviously be skeptical if the performance of the central bank has allowed periods of high and variable inflation. It is therefore important to think of credibility as a stock, in the sense that it depends on the accumulated performance of the central bank over time.

Standard linear models presume perfect levels of central bank credibility, but as periods of high or persistent inflation demonstrate, central bank credibility is often, if not always, imperfect. This observation is critical to understand, because the concept of central bank credibility depends on how well medium- and long-term inflation expectations are anchored. If the former is allowed to deviate persistently from the target, this will eventually result in a loss of credibility, where long-term inflation expectations ratchet upwards and the expectational process that governs wage- and price-setting behavior starts to reflect higher inflation expectations.³⁶ At the extreme limit, a central bank can face dollarization, when inflation uncertainty is so high that it is no longer rational for agents to price important goods and services (e.g. housing, cars, and durable goods) in the domestic currency.

Falsely assuming that credibility is linear, exogenous, and perfect can cause policymakers to ignore the reality that credibility can be lost if policy does not act sufficiently aggressively to avoid inflation from becoming high and persistent. This can result in a systematic underes-

35 The term “on average” is simply meant to represent that many measures of inflation contain significant noise in the data, and even if a central bank was behaving perfectly, inflation will not be equal to the target on a period-by-period basis.

36 It can be dangerous to assume that inflation expectations are always forward-looking, as the empirical evidence suggests that they are clearly backward-looking in many environments. In general, inflation expectations are better thought of as having a combination of both forward- and backward-looking components. To make an imperfect analogy, the process by which inflation expectations are formed is not dissimilar to the process of firms fixing prices for a period of time (e.g. one year). Just as firms would look out one year and back one year to understand where to set prices, a similar *ex post* and *ex ante* logic follows how inflation expectations are formed. Rudd (2021) makes the case for thinking critically and sensibly about the expectations channel rather than “adhering to it uncritically.”

timization of the extent of the policy response needed to bring inflation down and anchor medium- and long-term inflation expectations to the target. And due to the crucial nonlinearity in the credibility generation process, once credibility is lost, it is very difficult to regain, and the re-accumulation of credibility occurs only gradually. The central bank must eventually pay for the higher inflation that it allowed to persist, particularly because of the flawed assumption that inflation expectations are always going to be anchored to the target. The delay of necessary policy action ends up resulting in a greater cumulative output loss and first-order welfare implications for later inflation stabilization.³⁷ The critical takeaway is that in a world of high uncertainty, policymakers cannot afford to make the types of simplistic policy errors that arise from a failure to appreciate nonlinear relationships in the economy.

Finally, these fundamental uncertainties create significant problems in decision-making, which existing institutional setups simply aren't poised to resolve. Recent episodes (most notably the spike in inflation post-Covid) have shown that, when confronted with uncertainty, existing approaches push policymakers toward one of two (equally adverse) outcomes. One possibility is that policymakers will seek to minimize uncertainty by developing a baseline forecast that ascribes a degree of confidence to one possible interpretation and set of outcomes. Policymakers can attempt to assess how things would develop if the economy developed in an expected or linear fashion, but this is certainly never how the future unfolds. When the central bank relies on a singular baseline, it commits itself to a narrow interpretation of the economy that makes it much more difficult to respond to new information or

37 This, in many ways, is akin to what took place in advanced economies such as the US during the Great Inflation of the 1970s, when policymakers believed they had perfect credibility, ignored crucial nonlinearities in their thinking and analytical tools, delayed the necessary policy response, and thus allowed inflation to become entrenched and a stagflationary environment to emerge. Inflation was only broken by Volcker's extremely aggressive increase of the policy rate to 20 percentage points and a fairly severe recession. Even still, credibility (i.e. long-term inflation expectations) took over a decade to become well-anchored to the point target. Worryingly, echoes of this were seen in the macroeconomic situation in advanced economies during the Covid era, which is explored further in Kostanyan et al (2022c).

developments in the economy that run counter to this narrative. In this sense, policymakers' hands are tied by past communications. If new information emerges that requires a different interpretation of current or past economic developments than what was communicated in the baseline, the central bank risks contradicting itself, admitting fundamental errors in its original interpretation, and taking a policy stance that is sometimes drastically different than what was previously communicated in its forward guidance. This is the most significant problem with the baseline: it amplifies uncertainty about policy itself, limits policy agility, and unnecessarily places central bank credibility at stake.³⁸

The other possible outcome, which is equally undesirable, is that uncertainty causes policymakers to remain inert and fail to act. In highly uncertain times, a typical policy response is to want to “wait and see” how things will actually unfold and then respond through policy actions later when things become clear³⁹. The problem, of course, is that policymakers usually don't have this luxury of delaying necessary actions; in times of crisis or high uncertainty, decisive actions are often needed early on to credibly deal with whatever risk is threatening macro or price stability. Failing to respond sufficiently forcefully in a timely manner can lead to the central bank falling behind the curve. This can lead to dangerous, nonlinear outcomes; for example, a failure to respond to a demand shock sufficiently early and aggressively can allow inflation expectations to ratchet up and central bank credibility to decline. In

38 Perhaps the most obvious example is the experience of how to interpret and respond to rising inflation in the summer of 2021. Two main viewpoints emerged. One, led by figures like Lawrence Summers, argued that inflation was persistent, driven by excessive fiscal and monetary stimulus that was creating excess demand conditions, and advocated for early, aggressive monetary tightening. The other group believed inflation was transitory, caused mainly by temporary supply chain disruptions from the COVID-19 pandemic, and argued that inflation would stabilize without any meaningful policy response. Most advanced central banks adopted the latter “transitory” view in their baseline forecasts and communications, and sent clear messages to markets that interest rates would not rise. However, as 2021 progressed, evidence increasingly supported the view that inflation was persistent, and rates would need to rise. This created a dilemma for policymakers: how could they credibly reverse their stance? This hesitation delayed necessary rate hikes, allowing inflation and expectations to rise further. The episode significantly damaged central bank credibility, the effects of which continue to be observed.

39 Brainard (1967).

the best-case scenario, this can result in the central bank needing to raise rates higher for longer over the course of its tightening cycle than it otherwise would have had it responded early on. In the worst-case scenario, this can lead to “dark corner” outcomes of hyperinflation or panic that extract excessive costs from the public and economy at large. Of course, such criticism does not endorse central banks acting rashly and aggressively anytime a crisis hits, simply for the sake of being able to say that the central bank “did something” to solve the problem. Rather, it merely reinforces the need to have a systematic and rigorous approach in place for being able to take sensible, prudent, and necessary policy actions despite significant economic and parameter uncertainty.⁴⁰

The central thesis of this chapter is that uncertainty is an unavoidable part of conducting monetary policy in the contemporary era. The increasing complexity and magnitude of this far-reaching uncertainty fundamentally threatens central banks’ ability to meet their price stability objectives, and existing decision-making approaches are not sufficiently robust to allow policymakers to make effective policy decisions amid uncertainty. This is the central and most basic motivation for the development of a new policymaking and decision-making framework at the CBA, which is presented in the following chapters.

Over the past few decades, and particularly in times of instability, policymakers have raised clear concerns about the problem of uncertainty and how it complicates effective decision-making. In 2004, then-Chairman of the Federal Reserve Alan Greenspan famously laid out the problem with the following formulation: “uncertainty is not just a pervasive feature of the monetary policy landscape; it’s the defining characteristic of that landscape.”⁴¹ Policymakers have been grappling with ways to make policy amid uncertainty since the advent of monetary policy, and

40 These challenges have initiated a wide range of literature in “robust” monetary policy rules/decisions, see for example (and references therein) Levin and Williams (2003), Orphanides and Williams (2002), Orphanides and Williams (2007), and Taylor and Williams (2011).

41 Remarks by Chairman Alan Greenspan titled “Risk and Uncertainty in Monetary Policy” at the Meetings of the American Economic Association, San Diego, California; January 3, 2004.

the CBA's diagnosis is nothing new. Several central banks, including the US Fed under Greenspan,⁴² the Reserve Bank of New Zealand during the Covid-19 pandemic,⁴³ and even the CBA in crisis periods in 2013-14 and 2020,⁴⁴ have applied some version of risk management-based decision-making when setting policy in times of high uncertainty or crisis. The problem, however—and where the need to develop new approaches specifically arises—is that solutions that had been offered at various points over the past few decades to address this problem were episodic, rather than systematic, in nature.

The lack of a systematic and structured framework for risk management-based policymaking means that policy decisions could be seen as discretionary and based on policymakers' mere judgment, rather than being rooted in a robust, comprehensive, and systematic analytical and communications framework. These concerns about discretionary policymaking are further compounded by the fact that once these crisis periods dissipate and the economy returns to "normal" conditions, policymakers tend to abandon these approaches in their decision-making, analysis, and communications. This perceived inconsistency in how the central bank makes decisions from period to period adds a level of opacity about how the central bank will be making its decisions in any given period. It becomes much more difficult for markets and the public to anticipate what theoretical framework the central bank will be using when confronted with difficult decisions. At any given point, external audiences may find themselves asking if this is a period of uncertainty that warrants risk management or if we are in a period of normalcy, where the emphasis will be on most likely outcomes. Such inconsistency in approaches and communications, and the resulting lack of transparency, aggravates concerns about discretionary policymaking, and can impact the perceived credibility of central banks.

⁴² Ibid.

⁴³ Refer to remarks by Reserve Bank of New Zealand Assistant Governor Christian Hawkesby titled "A 'least regrets' approach to uncertainty," dated September 21, 2021.

⁴⁴ See, for example, inflation reports published by the CBA during these periods, as well as Governor Martin Galstyan's policy rate press conference dated December 15, 2020.

The other main issue is that uncertainty itself is not episodic—as Greenspan noted, it’s the “defining feature” of monetary policymaking, and it always complicates the job of policymakers. Sensible, systematic approaches to policymaking should therefore be equally applicable to periods of “high” uncertainty as they are to “normal” periods, since the latter will never be able to escape these fundamental, omnipresent uncertainties. Systematic approaches would also help avoid perceptions of discretion and inconsistency in central bank decision-making and communications, and help reinforce greater transparency about how central banks conduct policy in *all* periods, not just in supposedly normal times.

While many banks have conducted episodic risk management on an ad hoc basis, particularly amidst crisis, no central bank has adopted a systematic or structured *institutional* framework for risk management that can be effectively used in all periods. The very nature of risk management, which is qualitative in essence, makes it very difficult to conceptualize and operationalize this approach in practice. Building out a systematic and durable framework for monetary policy as risk management requires an extensive, multilayered refashioning of the central bank’s intellectual thinking, culture, and processes. This is the core innovation and contribution of the CBA’s framework to monetary policymaking.

3.

PRINCIPLES OF THE PRUDENT RISK MANAGEMENT APPROACH TO MONETARY POLICY: LEAST REGRETS POLICYMAKING UNDER A FLEXIBLE INFLATION-TARGETING REGIME

Defining Least Regrets and Monetary Policy as Risk Management

The CBA's fundamental worldview, which perceives risk and uncertainty as essential and pervasive phenomena in the policymaking landscape, given the experiences of the early 2020s, spurred us to ask very fundamental questions about the nature of what constitutes good policymaking and good policymaking frameworks:

- How do we design policies that are robust against a range of outcomes, including “dark corner” outcomes?
- What type of decision-making model would best support policymakers to design such policies?
- What type of communications would effectively convey the richness and complexity of our policy discussions, without minimizing the uncertainty we face or limiting our policy agility when new information arises?

- How can the policymaking process and framework be structured to effectively manage the high degree of risk and uncertainty that is always at the core of policymaking?

The ability of the CBA to successfully maintain price stability over the past two decades (despite a successive series of shocks and crisis periods) provided the Board with sufficient perspective and experience to be able to reflect on the essence and purpose of monetary policy. In other words—what is monetary policy fundamentally about? What is the basic, conceptual framework through which policymakers can make effective policy decisions amid uncertainty that work in service of the price stability objective? This line of questioning naturally leads to a formulation of monetary policy as a process, deriving from the following basic principles:⁴⁵

1. Understand where the economy is today, what the underlying forces are driving the economy, and where the key uncertainties lie surrounding interpretation of current and underlying conditions;
2. Soberly analyze the key risks and uncertainties both qualitatively and quantitatively, assessing the various scenarios through which these uncertainties can impact economic conditions and necessitate policy responses;
3. Given this understanding of current and underlying economic conditions and a scenario-based assessment of the various risks and uncertainties facing the economy, take prudent policy actions—built upon a commitment to act sufficiently aggressively and do “whatever it takes”—to bring inflation to target and stabilize the economy;

⁴⁵ This logic derives from, but expands upon, an alternative formulation of the purpose of monetary policy that posits three “essential ingredients.” Under this conceptualization, effective policymaking requires systematically answering the following three questions: (1) where is the economy now? (2) what are the underlying forces driving the economy? and (3) given the above, what do policymakers need to do with policy instruments to achieve their objectives?

4. Ensure that policy actions are sufficiently robust against a range of outcomes to prevent the economy from sliding into “dark corners” and dangerous nonlinearities.

This final point is arguably the essence of good monetary policy, which is characterized by its ability to prevent the economy from ending up in “worst case” scenarios that result in excessive social and economic cost. Policy can do everything right on paper, but its true success and credibility depend on its ability to shield the economy from the types of situations—e.g. hyperinflation, ELB trap, etc.—that can have disastrous implications on the long-term development potential of the country and the wellbeing of its population. Achieving this requires, above all, paying proper attention to the first two ingredients specified above; namely, understanding the key uncertainties about economic conditions and drivers, and rigorously assessing the ways in which varying interpretations or trajectories of these areas of uncertainty might result in different outcomes for the economy.⁴⁶ Emphasizing these uncertainties and analyzing their implications through scenario analysis is especially important because a flawed interpretation of economic conditions or developments can lead to incorrect judgments about where the economy actually is, forcing inappropriate policy responses that can drag the economy into unwelcome outcomes. These uncertainties (about current economic conditions, the nature of shocks hitting the economy, unob-

⁴⁶ A good, real-world example of this type of uncertainty about underlying economic conditions—with vast implications on the assessment of the true state of the economy and the necessary policy response to achieve price stability—is the uncertainty about the assessment of the output gap during the Covid-19 period. Avagyan et al (2023b) explores how errors in assessing the size of the output gap in countries like the US in 2020—driven by an underestimation of the fall in potential output due to aggregate supply bottlenecks during the pandemic—led to an overestimation of the size of the negative output gap, and in turn drove policymakers to provide excessive monetary and fiscal stimulus that, in turn, contributed to the high inflationary episode of 2021-2023. The paper shows how a scenarios-based approach, which would have recognized and emphasized the amount of uncertainty surrounding these real-time estimates and allowed for a discussion about various policy outcomes (including those where the output gap was estimated as being smaller and thus requiring less aggressive stimulus) would have been far less costly for the US economy and the Fed’s management of the inflation-output problem. This contrasts with the approach adopted by economic officials in the US, who only seriously considered (or at least outwardly communicated) a single scenario that seemed to gloss over just how uncertain any real-time estimate of the output gap would be in such a tumultuous shock episode.

servable variables, the structure of the economy, and so on, described in the previous chapter) are fundamental to economic analysis, and while they are heightened and made more apparent in times of crisis, they are a pervasive and unavoidable feature of the policy landscape in all periods.

The explicit focus on designing policies to avoid worst-case outcomes is the defining characteristic of least regrets policymaking, and it is the cornerstone of the CBA's prudent risk management policymaking framework. It is driven by a basic recognition that monetary policy is an exercise in risk management, and the most important risk that policy must manage is the "dark corner" scenario. Dark corners are defined by the degree of macroeconomic instability they pose, and the excessive degree of social cost they require to eliminate them once they have emerged. This includes hyperinflation (where inflation is allowed to remain persistently high, causing inflation expectations to become de-anchored and creating a loss of credibility and an inflationary spiral) as well as the deflationary and effective lower bound trap (where in combat of a deflationary spiral policy reaches the ELB and must seek other, opaque tools to stimulate demand).⁴⁷

The reason that these dark corners are so dangerous—and why policy must convincingly commit itself to avoiding specifically these outcomes—is that they are incredibly costly for the macro economy, most obviously in the near/medium term but also in the long run. For example, a hyperinflationary period, where inflation expectations are de-anchored and the central bank has lost its credibility, can only be overcome by harshly punishing the economy through a sustained period of very high interest rates. Not only does hyperinflation erode real incomes and quality of life for the population, but also, the exceedingly strong policy response that must follow results in significant lost output today and can result in reduced potential growth, allocative inefficiencies, distortions to the tax system, inequitable redistributions of in-

47 Textbook examples include the Great Inflation of the 1970s and the post-GFC recovery in the EU and Japan.

come, and labor market strife over the long run.⁴⁸ Similarly, the opposite fear—a deflationary trap—can be just as disastrous for the economy and broader social welfare. In the worst-case scenario, traditional monetary policy loses its effectiveness entirely. Even if the central bank lowers its key interest rate to zero or close to it in an effort to boost economic activity and control prices, the outcome may still be counterproductive. When inflation is negative or falling, the real interest rate (the nominal rate adjusted for inflation expectations) rises, tightening financial conditions instead of easing them. As a result, the economy can spiral downward. Japan has shown clear signs of this problem since the 1990s, and in the years following the global financial crisis, several other advanced economies—especially the euro area—faced a milder but prolonged version of it, characterized by very low inflation and continued economic underperformance.⁴⁹

Seen in this light, good monetary policy is defined by its ability to (within the realm of its capabilities) prevent the economy from ending up in such a situation in the first place. This requires carefully monitoring the risks and uncertainties that can threaten to drag the economy into such scenarios and designing policies that are sufficiently robust to ensure that the worst consequences of these types of scenarios are minimized.

As an important counterpoint, least regrets policymaking does not mean that monetary policy must be excessively rigid and conservative to ward off unwelcome outcomes; on the contrary, it means that monetary policy must be dynamic and agile in continuously monitoring these risks and assessing their potential implications on the economy. For example, policymakers who would most “regret” hyperinflation as a worst-case outcome would not be expected to keep interest rates well above neutral in an episode of a negative demand shock, nor would policymakers who fear being stuck in an ELB trap be expected to stimulate an overheating economy. “Least regrets” is not about abandoning the basic tenets of

48 See Summers (1991) and Sarel (1995).

49 See Al-Mashat et al (2018).

monetary economics, or blindly biasing interest rates in one direction. Instead, least regrets simply means a commitment to managing looming risks that have the potential to lead to worst-case outcomes, and ensuring that the policy response to any given economic situation is sufficiently robust to guard against those unwelcome outcomes.

A good example of least regrets policymaking in practice, which demonstrates its dynamic rather than rigid nature, is the CBA's October 2024 policy decision. The previous years had been characterized by very high growth and above-target inflation in the context of an unprecedented external demand shock, with policy responding in an appropriate fashion of steady tightening to curb excess demand conditions. By April 2023, inflation had decreased to below-target levels, and the CBA began its loosening cycle in June 2023, when most advanced economy central banks were still in their tightening phase (the Fed Funds Rate, for example, reached its peak level in July 2023). Between Q2 2023 and Q3 2024, the CBA had decreased the policy rate by a cumulative 3.25 percentage points in 11 steps, from a peak of 10.75% down to 7.50% before the October decision. By Q4 2024, many of the imbalances between aggregate supply and demand that had dominated the economic story in previous quarters were beginning to fade away. With inflation below target, external demand slowing, the labor market showing signs of cooling, and growth approaching more stable levels, the Board noted concerns that the economy could be fast approaching a period of slowing economic activity and weaker demand conditions. This type of scenario, under the CBA's policymaking framework, is known as a Case B-type scenario, as, all else equal, it would imply a medium-term policy rate path that is below what is currently priced into financial market participants. On the other hand, in its deliberations, the Board emphasized significant uncertainty about the sovereign risk premium and the neutral rate. This stemmed from both local concerns (geopolitical tensions, fiscal policy uncertainty, and so on) as well as global factors (a potentially higher underlying neutral rate globally). This type of scenario is referred to as a Case A-type scenario, since such a scenario would necessitate the policy rate to follow a higher path over the medium-term relative to what

markets expect. The Board's policy decision—to decrease interest rates by 25 basis points—was the same as in the past several decisions, but the risk assessment had explicitly shifted.

Whereas prior decisions were supported by the view that risks were balanced in both directions, the October 2024 decision marked an important shift in the risk assessment. The press release stated that “... while the Board believes that there is a greater likelihood of Case B-type scenarios materializing, it emphasizes the importance of minimizing the losses that could stem from the Case A-type risks.” Under its risk management framework, the Board responded to the obvious need to continue to decrease the policy rate amid a slowing economy, but it also emphasized in its risk assessment concerns about the country risk premium and neutral rate proving to be higher than assumed. It sent a message to markets that while economic conditions on their own would have warranted perhaps a greater decrease in interest rates, the need to mitigate the consequences of certain upside risks materializing softened the magnitude of the rate cut. The “least regret” component of this particular decision was that the outcome that policymakers felt they would most regret and therefore needed to mitigate was an underestimation of the neutral rate. Getting this uncertainty about the neutral rate wrong—in other words, making a policy error—could have resulted in an excessively lenient policy stance that, if it had been allowed to persist, may have led to adverse outcomes such as capital outflows and a loss in credibility that would have been excessively costly to correct. Policymakers believed this potential policy error to be meaningfully costlier than the regret that would follow from the policy rate proving to be slightly too tight, if economic conditions proved to be softer than expected (e.g. a relatively small loss in output that could be overcome by aggressive cuts in the future, at lower relative cost).

Another episode that is worth highlighting to demonstrate how the systematic risk management and least regrets framework works in practice is the CBA's decision to increase interest rates in December 2020. In late 2020, demand conditions were still subdued by pandemic-related public

health measures and inflation was below target. The key downside risk that dominated global economic discourse was that demand conditions continued to remain persistently subdued and required further stimulus—including quantitative easing in advanced economies—to support the economy. The CBA, which had reduced interest rates to near the effective lower bound at around the same time as most other countries, had begun to grow concerned about certain upside risks, which could have dangerous consequences if improperly managed. Specifically, the Board was becoming weary that as public health measures gradually eased, aggregate demand conditions could recover more quickly than initially anticipated, particularly given the significant stimulus and accumulated savings observed over 2020. If policy were to be slow to respond to this risk, inflation expectations could rise and ratchet upwards, rapidly eroding central bank credibility and requiring far greater interest rate increases in the future to re-anchor inflation expectations and build back lost credibility. The Board believed that the regret that would arise from allowing inflation expectations to increase was far greater than the regret that would arise from higher interest rates hampering demand recovery (especially given the availability of alternative tools for small open economies to avoid deflationary traps). Driven by this “least regrets” logic, the CBA was one of the first central banks in the world to increase interest rates, which it did in December 2020—well over a year before many advanced economy central banks.

This least regrets decision-making model, though it was not yet institutionalized within a policymaking framework in 2020, allowed the CBA to consider a range of scenarios to best understand the actions it needed to take in order to avoid the outcomes that it deemed most threatening to price stability and the long-term welfare of the nation. In times of uncertainty—and few periods historically have been as uncertain as the Covid-19 pandemic—such an approach allows policy actions to be prudent, appropriately timed, and agile. This provides policymakers with a toolkit for considering different interpretations of economic conditions, outlining plausible scenarios for how they might unfold, and assessing which types of outcomes they most want to avoid. Policymakers are

thus well-positioned to be able to make difficult but necessary decisions amid high uncertainty. Without this type of decision-making model, the Board may very well have responded to this uncertainty by adopting a wait-and-see approach, remaining inert even when looming risks required prudent actions to ward off unwelcome outcomes.

The essence of the prudent risk management approach lies in recognizing that in times of heightened uncertainty, policymakers must weigh several possible scenarios and policy choices rather than simply relying on a passive “wait-and-see” stance. Prudent risk management involves assessing the potential costs of acting too aggressively versus the costs of acting too late and then choosing the option that would minimize regret in the event of an error. Importantly, “wait and see” is itself a form of decision (and potentially a very costly one at that), since inaction can exacerbate adverse outcomes if worst-case scenarios materialize. The least-regrets framework therefore encourages a more comprehensive and forward-looking approach to decision-making, in which all possible outcomes are considered explicitly. The following table describes the types of errors that could arise from illustrative policy errors in a time of high uncertainty.

TABLE 3.1
Types of Policy Errors in Times of Uncertainty

Policy action	Risk materializes	Risk does not materialize
Act aggressively	Correct action: early action stabilizes economy, helps avoid deeper and costlier losses	Type I error: unnecessary policy action may have mild side effects (e.g. creating undue overheating or restraining the economy)
Wait-and-see (no action)	Type II error: delayed response allows latent risk to have deeper impact; stabilizing economy and regaining credibility becomes much harder and costlier	Correct (in)action: avoids unnecessary intervention

Source: Authors

The experience of Armenia in the following years vindicated this approach. Early steps to anchor inflation expectations and shore up credibility, coupled with a continued, prudent tightening of policy in the face of a second demand shock in 2022, allowed inflation in Armenia to stabilize and policy to begin the loosening cycle in Q2 2023, when many central banks were still raising interest rates.

Monetary Policy Objectives Under an Inflation Targeting Regime

Least regrets and risk management are not policymaking frameworks in and of themselves; they merely reflect a particular intellectual orientation regarding how policy ought to be made to be effective and work in service of its objectives. In this context, the least regrets and risk management approach to monetary policy fits within the CBA's flexible inflation targeting regime and represents an effort to more fully and dynamically achieve the objectives that inflation targeting sets out. The integration of least regrets and risk management principles (defined above) with the flexible inflation targeting regime (defined below) and the respective reimagining of the Forecasting and Policy Analysis System (defined in the next two chapters) creates a comprehensive and holistic prudent risk management framework for monetary policy at the CBA.

Definition of Inflation Targeting

Inflation targeting (IT) is a monetary policy framework in which the central bank publicly commits to achieving a clearly defined inflation rate over a specified horizon. The framework is forward-looking, transparent, and centered on the systematic use of interest rate policy to align inflation expectations and actual inflation with the announced target.

Defining Characteristics of Inflation Targeting

- **Well-Defined Numerical Target:** The central bank announces a clearly defined, quantitative inflation objective, defined as a numerical point target for the annual rate of consumer price inflation over a medium-term horizon.
- **Institutional Commitment:** The target is established as the primary long-run objective of monetary policy, supported by a clear mandate and operational independence of the central bank.
- **Forward-Looking Decision-Making:** Policy decisions are guided by forecasts of inflation and output developments, rather than by contemporaneous outcomes.
- **Comprehensive Framework to Support IT:** The IT regime requires a comprehensive policymaking framework that covers analytical, decision-making, communications, transparency, and other aspects. This ensures that IT follows a systematic and institutional, rather than discretionary, approach.
- **Transparency and Accountability:** Regular communication, with forward guidance, monetary policy reports, decision-making transparency, and analytical transparency (data, models, chart packs, etc.) strengthen public understanding and help anchor expectations.

Instruments and Targets

The short-term policy interest rate (often the overnight or refinancing rate) is the central operational tool. By adjusting this rate, the central bank influences short-term market rates, aggregate demand, and ultimately the path of inflation and inflation expectations.

Whereas older monetary regimes relied on explicit intermediate targets such as monetary aggregates or the exchange rate, modern inflation

targeting relies on the inflation target as the credible nominal anchor for the economy. The intermediate target under IT is either the inflation forecast (under traditional inflation targeting), or the optimal output-inflation tradeoff under flexible inflation targeting. Flexible inflation targeting maintains that the central bank pursues its primary objective of low and stable inflation while also taking into consideration other objectives such as output and employment, and that these and any other objectives remain consistent with the primary objective.

The final target is price stability, defined as the rate of inflation consistent with the central bank's announced objective over the medium term. Maintaining inflation near this level ensures price stability, supports sustainable growth, contributes to national prosperity, and anchors long-term expectations.

Policy Strategy

- Commitment to adjust the policy rate appropriately and sufficiently aggressively to ensure that the projected inflation rate converges to the target over the forecast horizon.
- Communicate the rationale, projections, and risks transparently to ensure policy decisions are well understood, reinforcing central bank credibility and policy effectiveness.
- Manage the inflation-output tradeoff: In an open market economy, periodic economic and financial shocks cause economic activity and inflation to fluctuate over time. In this context, the central bank does not target inflation on a period-by-period basis and does not attempt to bring inflation back to the target in the short term if it would result in undue economic and financial instability. In any economic situation, the central bank seeks to develop and implement monetary policy in a manner that brings inflation to the target in the medium-term horizon, while minimizing undue social and economic losses.

TABLE 3.2

Summary of Key Elements of Inflation Targeting

Element	Description	Example
Ultimate Objective	Price stability (low and stable inflation)	3% CPI inflation over the medium term
Intermediate Target	Inflation-output tradeoff	Not attempting to bring inflation back to target in short term if it creates undue economic instability
Operational Instrument	Short-term policy rate	Key policy rate decisions
Institutional Features	Transparency, accountability, independence	Publication of inflation reports, press briefings

Six Principles of Flexible Inflation Targeting

The experience of best-in-class flexible inflation-targeting central banks over the past two decades has demonstrated that effective flexible inflation-targeting frameworks abide by several fundamental principles. These are principles that are useful in designing and evaluating the performance of the framework, which is used to promote high levels of operational transparency and accountability.

1. The primary role of monetary policy is to provide a nominal anchor for the economy and placing weights on other objectives must not be inconsistent with providing an anchor for inflation and inflation expectations.
2. An effective inflation-targeting regime will have beneficial first-order effects on welfare by reducing uncertainty, anchoring inflation expectations and reducing the incidence and severity of boom-bust cycles.
3. The success of an IT regime is inextricably linked to other policies that make the task of monetary policy easier and more credible, and lower the social costs of monetary policy implementation.

4. Because of the lags in the monetary transmission mechanism, and because of the short-run concern with both the deviation of inflation from its target and the deviation of output from potential, it is neither possible nor desirable to always keep inflation exactly on target.
5. Given the possibility of conflict between inflation targets and other objectives, central bankers must have a reasonably clear objective for price stability and sufficient independence from the political process to achieve this objective.
6. There must be effective monitoring and accountability mechanisms to ensure that central bankers are behaving in a manner consistent with the announced underlying objectives and that monetary policy is based on sound practices.

Flexible Inflation Targeting (FIT) is a term used to dispel the misconception that central banks are only narrowly concerned about inflation. A FIT regime maintains that the central bank pursues its primary objective of low and stable inflation while also taking into consideration other objectives such as output and employment, and that these and any other objectives remain consistent with the primary objective.⁵⁰

Interpretation of Price Stability Mandate

The CBA defines its monetary policy objectives in its “Statement of Long-Run Monetary Policy Objectives,” published in each Monetary Policy Report and reviewed (endorsed by the Board) on an annual basis at the beginning of every year. This document embodies precisely how the Board interprets its price stability mandate in the context of its flexible inflation targeting framework. Several passages from the Statement are worth emphasizing here.⁵¹

⁵⁰ See Svensson (1997).

⁵¹ The full Statement of Long-Run Monetary Policy Objectives can be found in Appendix A. It is also published in each quarterly Monetary Policy Report.

Definition of Price Stability Objective

“The CBA develops and implements monetary policy to achieve its price stability objective. The fundamental role of monetary policy is to provide an anchor for inflation and inflation expectations. The Board believes that a three percent inflation target is consistent with its price stability mandate.”

Achieving Price Stability Objective (Intermediate Objective)

“While emphasizing the primacy of achieving the price stability and financial stability mandates over the medium term, the CBA recognizes that it is also responsible for managing the short-run tradeoff between inflation and output. In an open market economy, periodic economic and financial shocks cause economic activity and inflation to fluctuate over time. In this context, the CBA does not target CPI inflation on a period-by-period basis and does not attempt to bring CPI inflation back to the target in the short term if it would result in undue economic and financial instability. In any economic situation, the CBA seeks to develop and implement monetary policy in a manner that brings inflation to the target in the medium-term (12 quarter) horizon, while minimizing associated social costs through a “least regrets” approach.”

This paragraph clearly explains the “flexible” portion of the FIT regime. Monetary policy is not about a single interest rate decision at a single point in time—it is a comprehensive process, the key objective of which is bringing inflation to target over the medium-term horizon in a manner that avoids undue economic and financial instability and ensures inflation expectations remain well-anchored to the target. In traditional inflation targeting (IT), the central bank uses the inflation forecast as an intermediate target, carefully monitoring it to ensure progress toward the ultimate goal of price stability. Under flexible inflation targeting, however, the intermediate target shifts to the “socially optimal” inflation path, which explicitly reflects the central bank’s short-run trade-offs between stabilizing inflation and supporting economic activity in the decision-making process.

Interpretation of Primary Objectives

“We emphasize that the primary objectives of price stability and financial stability are a means to an end. The ultimate purpose of the CBA as an accountable public-sector institution is improving the welfare of our nation. A commitment to achieving low and stable inflation provides a credible nominal anchor for the economy and thereby anchors inflation expectations, helps to avoid inefficient boom-bust cycles, stimulates investment, supports the economic development of the country, and improves living standards over time.”

How the central bank interprets its primary mandate is arguably the most important foundation for the conduct of monetary policy. The CBA explicitly acknowledges that price stability is not an end in itself; rather, it is the foundation for stable and sustainable growth and development over time. Ensuring widespread acceptance and championing of this vision by the broader public is key for supporting central bank credibility and independence in the long run. Moreover, this is the key linkage between inflation targeting and least regrets. By recognizing that price stability is a *means* to improving long-term national welfare, the CBA explicitly acknowledges its duty to prevent or mitigate those dark corner outcomes that are caused or worsened by policy errors; specifically, those outcomes that can significantly damage macroeconomic stability, derail long-term economic development, erode living standards, or require excessive and undue cost to correct. This interpretation, by default, necessitates the adoption of least regrets decision-making: policy must take care to avoid pushing the economy into worst-case outcomes. It also speaks about the role of the central bank as a socially responsible public sector institution, while acknowledging the limitations of what monetary policy can and cannot be expected to do.

Operational Objective

“The CBA’s primary means of adjusting the stance and path of monetary policy is through changes in the expected path of short-term interest rates. If interest rates were to be constrained by the effective lower bound, the Bank would be prepared to use its full range of policy tools.”

This paragraph clearly defines the main policy tool (or operational target) of the central bank as the short-term interest rate, which is the policy rate in the case of Armenia. The short-term interest rate is the starting point of monetary policy transmission. Decisions of the short-term rate are made with the intermediate target (managing the short-term tradeoff between inflation and output in a prudent and cost-minimizing way) in mind, with the goal of ensuring the price stability objective of 3% inflation over the medium term (the nominal anchor for the economy).

The Board sets the key policy rate, and the operational framework is designed to effectively ensure that short-term market interest rates form alongside the policy rate. While the conventional short-term interest rate is the key policy tool, the Statement of Long-Run Objectives emphasizes that the central bank may use its full range of policy tools if the short-term interest rate is constrained by the effective lower bound. This includes the use of strategic FX interventions, adjustments to the reserve requirement, quantitative easing, and so on, as shown in Figure 3.1. In practice, in the explicit event when interest rates are constrained by the ELB, the use of alternative instruments means that the Board temporarily changes its operational target (exchange rate, yield curve, quantitative targets, etc.).

Strategic FX interventions can serve as an effective policy tool if the interest rate is constrained by the effective lower bound.⁵² The IMF defines several guiding principles for ensuring FX interventions are guided by a clear strategy, are transparent, and serve their intended purpose:⁵³

52 Importantly, the use of strategic FX interventions to stimulate the economy when the policy rate is at the effective lower bound is different from traditional central bank interventions in FX markets, which are used to smooth market volatility and do not serve a policy purpose.

53 See International Monetary Fund, *Integrated Policy Framework: Principles for the Use of FX Intervention* (2023).

TABLE 3.3**Guiding Principles for the Use of Strategic FX Interventions**

Principle	Explanation & Application for CBA
1. FXI is warranted only in the presence of well-identified frictions that limit the benefits of exchange rate flexibility for macroeconomic adjustment.	Using Strategic FXI to serve policy objective of stimulating the economy only when the main policy tool is constrained by the effective lower bound.
2. In view of costs from FXI, FXI should be used only if shocks are large, posing significant risks to central bank objectives, and if FXI can be effective in supporting these objectives.	Absent a clear and well-defined strategy, FXI can be costly, impede the development of financial markets, invite speculative flows, forgo the benefit of ER flexibility for macro-adjustment, obscure policy objectives, and create moral hazard. This highlights the importance of a well-defined strategy with clear use cases, strong transparency, and sparing use.
3. FXI should not substitute for a warranted adjustment of macroeconomic policies.	FXI is a second-best policy, which should be integrated within the overall policy response as a complementary tool. It is used only when the policy tool has reached the ELB and its further adjustment is constrained or practically impossible.
4. Strong central bank governance and communications are necessary to ensure the success of FXI.	Requires high transparency, which includes: well-articulated FXI framework; pre-established decision-making process; internal guideline on implementation; and ex-post assessment of FXI. CBA communication covers policy regime, objectives, strategy, decisions, and decision explanations.
5. There is an intertemporal trade-off in spending and accumulating FX reserves.	Holding excess FX reserves involves sterilization costs and exposes the central bank to valuation losses. Clear communication of objectives can increase effectiveness of FXI and reduce the reserves that need to be deployed to meet these objectives.

Importantly, the use of strategic FX interventions as an alternative monetary policy tool is not novel or hypothetical; it has been used as an effective policy instrument when the main policy tool has been

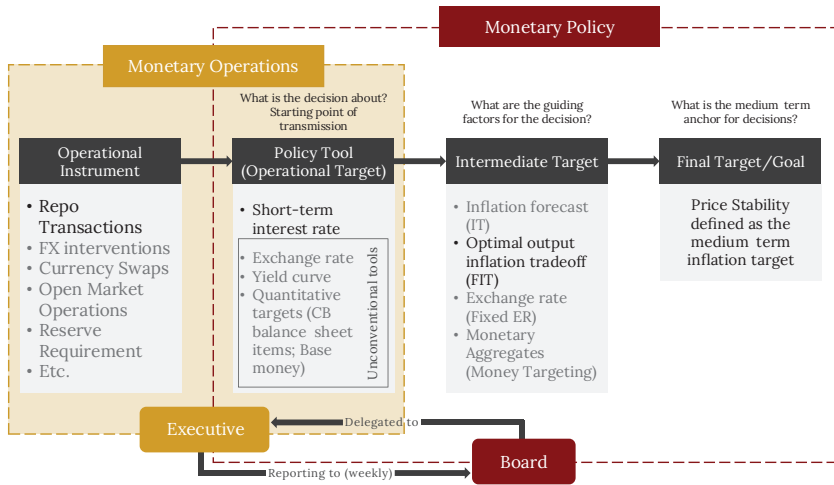
constrained by the ELB, as was the case of Czechia in late 2013–2016.⁵⁴ Small open economy central banks, including the CNB and the CBA, can always depreciate, if they have the legal authority to purchase essentially unlimited quantities of foreign currency assets. With the policy rate at zero, conventional easing was exhausted. The CNB announced a commitment to prevent further koruna appreciation and maintain a floor of CZK 27 per euro, effectively depreciating the currency by about 7% to stimulate inflation expectations and economic activity. Importantly, the CNB explicitly retained inflation as its sole target and framed the FX floor as an instrument, not a shift in regime. Transparent communication and forward guidance (stating the FX floor would remain “for as long as necessary”) were critical in anchoring expectations and maintaining credibility. Moreover, if communications are sufficiently robust and the actions are sufficiently credible, the central bank will actually have to intervene very little; credibility, clear communication, and strong institutional framework are sufficient to impact market expectations and behavior.

In summary, the overall strategy of monetary policy at the CBA relies on the use of the key policy rate (short-term interest rate), guided by the intermediate target of efficiently managing the short-term output-inflation tradeoff, to achieve the final target of price stability, defined as the numerical point target for inflation in the medium-term. In specific and well-defined cases, the full suite of policy instruments, including a strategic FX interventions strategy, can be used to complement the overall policy response, given the presence of a comprehensive and transparent framework for the use of unconventional tools. This overall strategy is described in Figure 3.1.

54 See Alichí et al (2015), Franta et al (2018), Hampl and Skolepa (2014), and Cwiak and Winter (2024).

FIGURE 3.1

Monetary Policy Strategy



Source: CBA

4.

SYSTEMATIC USE OF MULTIPLE SCENARIOS TO SUPPORT PRUDENT RISK MANAGEMENT APPROACH TO MONETARY POLICY AT THE CENTRAL BANK OF ARMENIA

Implementing risk management and least regrets policymaking in practice requires a systematic organizational framework that effectively structures the processes for monetary policy design, decision-making, and implementation. Such an organizational framework is imperative for turning the rather abstract notion of risk management into a structured and cohesive system that can be operated in a consistent, transparent, and well-defined manner. Moreover, it must address virtually all organizational and procedural aspects of all that is required to make appropriate policy decisions under the risk management framework, from the underlying analytics, to staff training, to processes. Therefore, the CBA has developed the FPAS Mark II framework, which is a comprehensive organizational system that allows the Prudent Risk Management Approach to Monetary Policy to function in practice. This comprehensive framework comprises several components, including the role of scenarios; board and staff culture; processes and procedures; a system for research, surveillance, and analysis; analytical toolkit; and a complementary human capital framework. This chapter explores a central aspect of the organizational framework—the systematic use of scenarios — while the following sections address the procedural, cultural, analytical, human capital, communications, and accountability frameworks.

The prudent risk management approach emphasizes the systematic use of multiple scenarios in analysis, policy deliberations, and communications, rather than a single baseline forecast. The process by which scenarios are constructed, the criteria they meet, the structure they follow, and how they are communicated must be clearly defined and codified within an institutional setup.

| Defining the Appropriate Set of Scenarios

When thinking about potential scenarios regarding how the economy might develop, there is a virtually limitless universe of scenarios that one could imagine, especially in times of higher uncertainty. But having an exceedingly broad list that represents every possible development does not add value; it merely bombards decision-makers and external audiences with unnecessary information, and it certainly does not aid policymakers in managing uncertainty. Therefore, scenarios that are put on the table for discussion of policy risks must be selected according to a well-defined set of rules and systematized according to a consistent structure, which can help policymakers best understand the realistic, data-driven, and policy-relevant issues that they must manage to ensure medium-term price stability.

A scenario is defined as a coherent and realistic macroeconomic narrative, informed by data and plausible analytical interpretations, which are worth considering from the perspective of managing monetary policy-relevant risks. Consistent with this logic, candidate scenarios should be:

- **Related to the Current Data:** Be relevant to the current policy situation, in the sense of being connected to the current conjuncture as described by the data (and reasonable interpretations thereof). Initial and underlying conditions of the economy are subject to a wide range of interpretations; the uncertainty associated with this range of interpretations is a key reason for constructing scenarios.

- **Realistic:** Be realistic, in that “it could happen,” even if it does not have the highest likelihood. The key is to have relevant (see below) and realistic reference points for the risk analysis that describe the potential range of behavioral responses to the current situation—in other words, possibilities worth thinking through in advance of them being realized. This approach would replace the misguided search for exact and detailed forecasts around which specific plans are made.
- **Relevant for Monetary Policy:** Reflect policymakers’ fears or concerns about what monetary policy might be confronted with over the next few years. Where the risk of sliding towards a dark corner, in case of a policy error, has become a notable concern, a scenario describing such an evolution would be consistent with risk minimization on a least regrets or other basis.

Requiring scenarios to meet the “three R” criteria defined above ensures that the Board focuses its energy on deliberating and communicating risks and uncertainties that have a direct bearing on meeting the price stability objective. While scenarios involving unforeseen shocks (e.g. an alien invasion) could *hypothetically* happen, they are not rooted in immediate data, nor are they necessarily a monetary policy problem. If unforeseen shocks do arise, monetary policy would be expected to respond swiftly and appropriately in real time, and therefore, their inclusion in the set of scenarios does not add value to deliberations and communications. Policymakers would not be expected to change their policy stance today because the probability of an alien invasion at some point in the future is nonzero. The focus, then, is on identifying scenarios that are based on plausible interpretations of the existing data (including uncertainty about measurements of real and unobservable variables), which could realistically unfold in a medium-term horizon and are directly relevant in terms of their impact on medium-term price stability. This set of criteria significantly narrows down the universe of scenarios to a concise set that is worth considering in deliberations and communicating externally.

Most importantly, the process through which these scenarios are identified should be inclusive and comprehensive. It should reflect considerations of Board members (as raised in the Kick-Off meeting and in meetings with Board coordinators; see the next section), the Staff (based on continuous current analysis and monitoring of the economy), and markets (based on risks and uncertainties identified in their survey responses, described further below). The staff, under the direction of the Head of MPD, is responsible for filtering these scenarios to ensure that they meet the necessary criteria, but the expectation is that over time, continuous training and dialogue with the Board and markets would result in these agents themselves only coming up with those types of scenarios that meet the 3R criteria defined above.

Structuring the Scenarios within a Consistent Framework

The scenarios, which are all rooted in data, realistic, and relevant for policy, are organized within a structured and consistent framework. A formal classification system is especially helpful for motivating the development of 3R-consistent scenarios as well as allowing policymakers and external audiences to understand the implications these scenarios would have on monetary policy. To support both classification and communication, each scenario is summarized as a concise narrative statement that describes the event and its underlying cause, followed by a brief discussion of the macroeconomic consequences and policy implications (imperatives).

This framework of classification can follow one of two directions: scenarios that result in the policy rate following a higher path than what is priced in markets (Case A) and scenarios where the policy rate would follow a lower path than what is currently priced into markets (Case B). Additionally, when appropriate, tail risk scenarios including Case X (policy rate path significantly higher than market expectations) and Case Y

(significantly below market expectations) could be included, which would need to be managed to avoid throwing the economy into dark corners.

- **Case A:** scenarios where the policy rate path would need to be higher than what the market currently expects.
- **Case B:** scenarios where the policy rate path would need to be lower than what the market currently expects.
- **Case X(Y):** tail risk scenarios as well as scenarios that incorporate avoiding the Dark Corners of monetary policy; high and variable inflation, or a low inflation trap.

To illustrate this classification, an example of a Case A scenario could be one where advanced economy central banks choose to keep policy rates “higher for longer,” in contrast to current market expectations of a rapid loosening of policy rates. Since the latter is embedded into market expectations about the path of domestic interest rates today, a scenario where global interest rates remain higher would, all else equal, invariably lead to domestic interest rates following a higher path than is currently expected. This is a textbook example of a Case A scenario. Similarly, a textbook Case B scenario might be one where demand conditions in the domestic economy rapidly deteriorate, throwing the economy into negative output growth and low inflation expectations. Monetary policy would need to loosen its stance—meaningfully more than what market participants expect today (no recession scenario)—in order to meet its objectives.

Building on this simple classification system, the framework further organizes the scenarios within a structured matrix, known as the “Taxonomy of Scenarios.” The Taxonomy of Scenarios provides a comprehensive, structured assessment of the different types of risks, shocks, and sources of uncertainty that can affect the Armenian economy. It describes their potential impacts on inflation and economic environment in Armenia, as well as loosely illustrates implied monetary policy

reactions by the CBA. As a structured summary of the various policy-relevant scenarios considered by several key stakeholders—including the Board, Staff, financial markets, and public—the Taxonomy presents the key issues that can impact policy decisions over a medium-term horizon in the context of a least regrets decision-making framework. Hence, it is “collection” of narratives and scenarios, at least one of which has influenced at least one Board member’s policy decision in a given policy-making round. The evolving Taxonomy of Scenarios is published in each quarterly MPR.

TABLE 4.1
Structure of the Taxonomy of Scenarios

Case A-Type Considerations	Case B-Type Considerations
Expansionary Demand: Shocks result in aggregate demand rising more than aggregate supply, increasing underlying inflation. This requires an increase in the policy rate path that is sufficiently aggressive to anchor inflation and inflation expectations. Complications: credibility is fragile Output + Inflation +	Contractionary Demand: Shocks result in aggregate demand rising less than aggregate supply, decreasing underlying inflation. This requires a decrease in the policy rate path that is sufficiently aggressive to anchor inflation and inflation expectations. Complications: ELB, stuck in low inflation trap Output - Inflation -
Contractionary Supply: Nasty stagflationary shocks that require an aggressive upward adjustment in the expected path of the policy rate, resulting in a significant short-run tradeoff between inflation and other real objectives (e.g., unemployment) Complications: Hard to hit the wounded economy Output - Inflation +	Expansionary Supply: Favorable supply shock(s) reduces inflation toward the target and results in higher growth as well as lower interest rates; is a policymaker’s dream. Complications: it can be risky if this environment is extrapolated into the future Output + Inflation -

Source: CBA

All the scenarios put on the table and summarized in the taxonomy are classified into those that can have Case A-type (expansionary demand, contractionary supply) and Case B-type (contractionary demand, expansionary supply) considerations. While various classifications of shocks are possible, the taxonomy makes a distinction between supply and demand side forces, to provide policymakers a structured framework for analyzing the source of inflationary pressures and potential risks to the economy. By understanding the nature and magnitude of different types of shocks, policymakers can then design appropriate monetary policy responses to mitigate the negative impact of adverse shocks and leverage the benefits of positive shocks.

The other key purpose of the taxonomy is as a communications device to aid policymakers in casting their votes and supporting their decisions. According to the least regrets decision-making model that is the cornerstone of the prudent risk management framework (described in previous chapters), monetary policy decisions are guided by the logic of managing one or several risks that could threaten price stability over the medium term. The existence of a systematic taxonomy for communicating the entire set of policy-relevant risks, uncertainties, and development scenarios provides policymakers with a structured reference point when making their decisions and explaining the rationale behind their decisions—specifically, which types of scenarios or outcomes they are trying to manage through their decision.

Moreover, because the CBA's policy rate decisions are made by an eight-member Board (where the official decision equates to the majority of the votes that have been cast by the eight Board members, rather than having a single Governor decision-maker, as in some other central banks), each Board member's vote is going to be driven by a different "least regrets" logic. This is just as true when Board members cast different votes (e.g. one votes to lower the policy rate by 50 bps, driven by concerns about Case B-type risks including a slowing global economy, while another votes to keep the policy rate unchanged because they believe the risks are balanced in both directions) as it is when Board

members cast the same vote (e.g. two Board members' votes to lower the policy rate by 25 bps can be motivated by the need to manage two different sets of risks; one might emphasize concerns about slowing demand conditions in the domestic economy, while another may be most concerned about the prospect of lower interest rates globally). The taxonomy proves especially useful for being able to communicate the diverse logic of Board members' individual votes, providing a structured and systematic basis that they can refer to when casting their vote and explaining its rationale to the public. This is an important pillar of being able to ensure that the decision-making process and rationale is highly transparent, as well as ensuring that individual Board members can be held accountable for their actions.

| Quantifying Illustrative Scenarios

In each quarterly policymaking round where a Monetary Policy Report is published, one Case A and one Case B scenario (and, when needed, a Case X and/or Y scenario) is selected to be quantified as a full-fledged economic scenario with macro-consistent projections across a wide array of variables. These quantified scenarios are illustrative in nature, meaning that they do not represent what the staff or Board believes to be the most likely or the most preferable future scenario. Instead, they simply quantify a specific scenario, almost randomly selected from the broad Taxonomy of Scenarios. The criteria for selecting an illustrative scenario at near-random from the Taxonomy is set by the CF (communication-feasibility) rule:

- **Communication:** the underlying narrative for the illustrative scenario must be easily communicable and serve broader communications purposes.
- **Feasibility:** quantification of the scenario must be feasible, considering data availability, modeling capabilities, and resource constraints.

The purpose of selecting an illustrative scenario for quantification is to effectively communicate to external audiences a typical monetary policy reaction under a specific scenario. This gives the public a general understanding about the central bank's monetary policy reaction function in a typical risk-management environment; in other words, how would a risk management-oriented central bank typically be expected to behave under a given set of circumstances? For example, in the Q4 2024 Monetary Policy Report, the illustrative Case A scenario related to uncertainty regarding domestic demand conditions, specifically the possibility that excess demand conditions emerge. The illustrative Case B scenario was about the possibility of an adjustment in the real estate market creating potential spillover effects on domestic demand and consumer prices. These scenarios were not selected because the Board and staff believed that an uptick in demand pressures or a slowdown in the real estate market were the most likely upside and downside risks that they were trying to manage with their current decision. Rather, they were selected at near-random as illustrative scenarios in order to illustrate how policy might respond in the event of these types of risks materializing and what effects they would have on the macro economy. At the same time, they served a useful purpose in demonstrating to external audiences that regardless of what type of upside or downside risk would materialize, the CBA would take appropriate policy actions (such as through a higher or lower path for the policy rate, depending on the scenario) in order to stabilize the economy and bring inflation back to target at minimal social cost. The quantitative projections accompanying these scenarios also allowed Board members to better explain and support their votes regarding the interest rate. In this sense, the primary purpose that the illustrative, quantified scenarios and the accompanying projections serve is a communication one, and does not carry with it any probability or determinism. This contrasts with the traditional baseline scenario, which attempts to represent the central bank's best estimation of how the future is most likely to unfold.

Considering the importance of the qualitative narrative that supports each scenario within the Taxonomy, a qualitative narrative is published

with the projections, which provides a clear basis for the motivation behind the scenario. It explains in clear language its macro relevance and implications on price stability, and why the Board would need to intervene to manage the risks stemming from such a scenario. This type of qualitative discussion, rooted in economics first and foremost, helps clearly communicate the role of monetary policy and how policy would react to an illustrative shock. Together, the qualitative narrative and the quantitative projections form the core of central bank forward guidance, and this illustrative approach far better helps explain potential monetary policy responses in the future than a baseline approximation of a most likely future that will never actually unfold.

TABLE 4.2.
Role of Scenarios in Traditional Monetary Policy versus Risk Management

	Traditional Monetary Policy	Risk Management Approach
Why use Scenarios?	“To prepare for contingency or emergency planning and to give policymakers courses of action for alternative futures...” ⁵⁵	To define the potential sources of risks for policymakers that needs to be considered for managing under the Least Regret Approach.
What is the Scenario about?	Possible future economic outlook	A qualitative/quantitative description of plausible scenarios that are not currently priced in the market and might require tighter or looser monetary policy to mitigate the risks of the economy sliding into a “dark corner”.
How to think of a Scenario?	Likely (probable) outcomes in the future	Realistic outcomes that also causes concerns for policy-makers (Risk=Probability*Loss)

⁵⁵ See Ciccarelli et al (2025).

Market Expectations of the Future Path of the Policy Rate and the Market Reference Scenario

Treating monetary policy as a risk management process requires a different approach to the scenario-building process. Rather than treating its own central projections as the best piece of information and forcing market participants to coalesce around this singular view of unfolding economic conditions, the CBA instead utilizes market expectations for the central bank policy rate as a starting point for policy deliberations. Market expectations, by design, contain significant information about market views on current economic developments and possible behavior of monetary policy in the future economic environment.

Before the development of state-of-the-art, flexible inflation targeting approaches that were based on a forward-looking FPAS framework, monetary policy communication predominantly focused on direct actions like the setting of short-term policy rates. Rates such as the one-week repo are not particularly relevant for most people. Longer-term interest rates tend to hold greater significance as these are the types of maturities that households and businesses typically borrow and lend. The two principal components that make up longer-term rates are the term and risk premiums and the expected path of the policy rate.

Of these two components, it is the expected policy rate that matters most. In the days preceding inflation targeting and FPAS, central banks embraced a “say little, let actions speak” philosophy. This approach translated to mere announcements of short-term policy rates, often without shedding light on the broader economic or policy frameworks underpinning these decisions. As inflation targeting regimes were adopted, transparency in communicating a central bank’s perspective and rationale became a necessary precondition for the regimes’ efficacy. As central banks enhance their clarity, financial markets gain the agility to recalibrate efficiently between policy decisions. During these dates, policymakers do not merely finalize the current policy rate; they also

provide insights into their monetary policy decisions, as well as provide a trajectory of the policy rate based on different assumptions.

In advanced economies with well-developed financial markets (including secondary bond markets), gleaning market expectations of the future path of the policy rate is a relatively straightforward task. The Atlanta Fed Market Probability Tracker presents one such approach, whereby researchers use Eurodollar futures and options on futures (which are highly liquid markets) to infer market expectations of future FOMC decisions.⁵⁶

For countries with less developed financial markets that lack options markets, such as Armenia, the task is less straightforward. Researchers here should be careful to avoid a common pitfall of attempting to make up for the absence of an options market by “over-modeling,” which can ascribe a false degree of precision that is based on unreliable or incomplete information. What we propose instead is utilizing three separate approaches, each of which adds value for different reasons.

First, we take as a starting point information from the spot market for shorter-term bonds (one year and less) and perfect foresight-based inferences about the term structure of the yield curve. We recognize that data from the spot market is imperfect and cannot paint a complete (or always accurate) picture about market expectations of the policy rate. For example, bond markets experience high term premium volatility, face frequent liquidity and other shocks, and so on, making it difficult to perfectly assess which price movements result from changes in interest rate expectations versus other factors.

Second, we conduct a quarterly macro survey of financial markets (including commercial banks, institutional investors, asset managers, and others), who provide a macro-consistent projection of inflation, growth, policy rate, and exchange rate over the medium-term horizon, along

56 Refer to Fisher and Robertson (2016) and Fisher (2016).

with accompanying narratives supporting these scenarios. In addition to quantitative projections for these variables, participants provide a narrative description of the macroeconomic stories underlying these projections. This is especially helpful for understanding what assumptions about current and future economic developments are “priced into” the quantitative market expectations.

Recognizing that economists’ projections may deviate from how financial participants actually behave, we finally dovetail this approach with a high-frequency survey of policy rate expectations among dealers in commercial banks and credit organizations. This survey is conducted sixteen times per year, before and after each decision. This high-frequency format offers a view into how expectations change in real-time in response to both economic developments as well as the central bank’s official communications. Moreover, because they are completed by dealers who make financial decisions every day with certain expectations in mind, these high-frequency surveys should better reflect real-world, rather than hypothetical, expectations.

| Market Reference Scenario

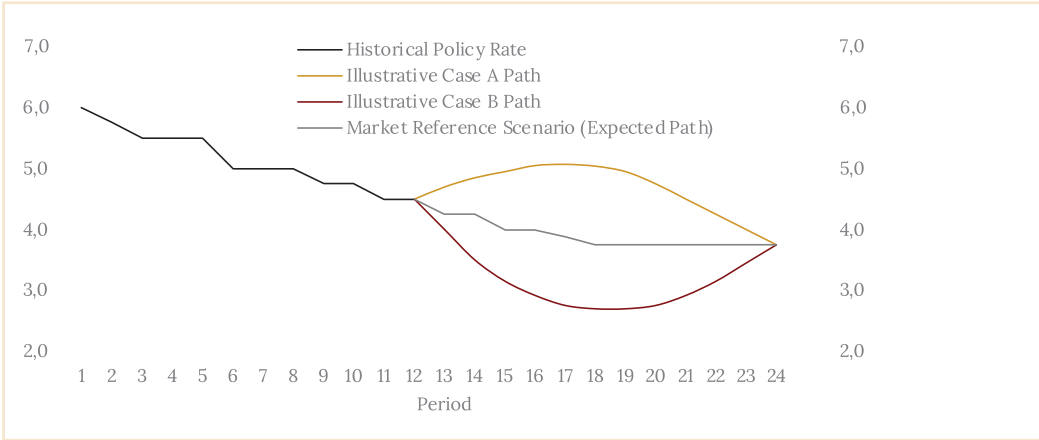
The results of the quarterly macroeconomic survey are used to construct a “market reference scenario” or “MRS”, which embodies market participants’ best estimations (both behavioral and judgmental) about their most likely scenario for the future path of the policy rate and broader economy. The quarterly surveys contain macro-consistent, quantitative projections for the policy rate, inflation, GDP growth, and the exchange rate; the MRS is the median of these responses. At the same time, the quarterly surveys include qualitative, narrative assessments of the macroeconomic story underlying these projections. This provides a solid footing for understanding the types of assumptions about current and future economic developments, from which the policy rate expectations derive, that are priced into these quantitative

expectations. Since the MRS represents what the market believes to be the “most likely” outcome for the economy, it provides a frame of reference for a more robust discussion around the various uncertainties, scenarios, and “missing stories” that are not embedded into market expectations, but that the Board finds important to control in its risk management framework. For example, the taxonomy of scenarios, which are used to frame and communicate relevant narratives for policy, are constructed relative to this market reference scenario (with Case A being above this path, and Case B being below).

This market reference scenario, in many ways, serves a similar purpose as a traditional baseline scenario under FPAS Mark I, in the sense that it represents the market’s rough estimation of the “most likely future,” given the information available to market participants at a particular point in time. In the absence of official baseline projections from the central bank, the MRS can serve as a substitute for the baseline for those external stakeholders (e.g. IFIs, fiscal authorities, and others) who rely on exogenously-provided projections when making their own planning decisions. At the same time, this approach helps avoid many of the issues specific to baseline forecasting, since it is not “owned” by the central bank, does not represent an official baseline forecast from the central bank, and is not intended to represent the views of monetary authorities about the most likely future for policy. By stripping away direct linkages with policy actions and commitments to future policy actions, the market reference scenario can serve as a useful public good for external stakeholders who are reliant on such projections, without the central bank falling into the traps associated with an official baseline scenario.⁵⁷ Refer to Appendix B for a practical guide to constructing scenarios.

57 Of course, external stakeholders may be wont to refer to the market reference scenario as a baseline or central projection. While we cannot police verbiage, we certainly caution against treating the market reference scenario as an official baseline to avoid the baggage and folly typically associated with an official central projection.

FIGURE 4.1
Hypothetical Example of Case Scenarios and Market Expectations
under the Prudent Risk Management Framework



Source: CBA

5.

OPERATIONAL AND INSTITUTIONAL ARRANGEMENTS OF THE FPAS MARK II FRAMEWORK

The core ideas of the prudent risk management approach—least regrets decision-making, monetary policy as risk management, scenario-based analysis, high degrees of transparency and accountability, and so on—are general principles, and these can be applied within an institutional framework in a number of ways. The CBA has institutionalized the prudent risk management approach within a holistic and comprehensive operational framework known as FPAS Mark II (representing the second generation of the Forecasting and Policy Analysis System). FPAS Mark II represents how the prudent risk management approach is put into practice on an operational, institutional, and procedural level, and this chapter is devoted to exploring the “nuts and bolts,” day-to-day aspects of putting the prudent risk management approach into practice at the central bank.

The core pillars of the FPAS Mark II framework include the following:

- **Processes and Procedures:** to put the prudent risk management approach into practice, it is necessary to have a well-defined set of processes governing the steps leading up to each policy decision. This includes having a codified policymaking cycle, with well-defined timelines, meetings, analytic touch-points, and so on, as well as specific processes that must be followed to ensure a high degree of quality in the analysis supporting each decision. This type of structured approach to each policymaking cycle helps ensure that

the staff consistently prepares high quality analysis, that there are regular touch-points between the staff and the Board allowing for knowledge-sharing and collaboration, and that each decision is supported by a consistent and rigorous process. Additionally, these processes relate to final Board deliberations and communications. Together, having a clear and inviolable set of procedures for each policy decision helps ensure that they follow a systematic approach and never fall into the realm of discretionary policymaking.

- **Research, Surveillance, and Monitoring:** the Monetary Policy Department is continuously engaged in conducting high-quality research and monitoring the economy as part of its current analysis. Having a well-defined system in place for research, surveillance, and monitoring ensures that current analysis is an integral part of the team's day-to-day responsibilities and is carried out in a continuous, never-ending process. This ensures that the staff is always closely monitoring global and domestic economic developments that are relevant for monetary policy, that there is an established platform for sharing this knowledge with the Board on a weekly basis, and that analysis is not solely confined to policymaking rounds. Further, a systematic approach to research projects provides a platform for staff to develop their skills and aptitudes, while also strengthening institutional knowledge over time.
- **Board-Staff Collaboration:** The successful functioning of the framework in practice depends not just on processes and procedures. It most of all relies on a culture of effective collaboration between Board and Staff members, intended to support “adversarial collaboration” among Board members in order to eliminate group-think and consensus-seeking, while fostering a culture of “parallel thinking” among the Staff to professionally engage with a diverse array of hypotheses amid high uncertainty.
- **Analytical Tools:** to support the prudent risk management approach in its emphasis on uncertainty and nonlinearities, the FPAS

Mark II framework includes a codified analytical framework that includes a suite of models. These models, expanded upon further in this section, are designed to overcome many of the limitations of linear DSGE models, in terms of better approximating nonlinear relationships in the economy (regarding things like endogenous policy credibility, nonlinear Phillips curve, and the behavior of economic agents). This analytic toolkit provides a strong foundation for being able to support high-quality deliberations among the Board, as well as to more usefully illustrate key issues in external communications. At the same time, however, the FPAS Mark II framework emphasizes that models are merely tools, and they are not treated as an oracle that can provide perfect answers or substitute for critical thinking or good economics.

- **Human Capital Framework:** A cornerstone of the framework is the emphasis on supporting strong human capital. All the components of the framework are only possible if there is well-trained, high-quality staff capable of carrying out these responsibilities. To support this objective, the human capital framework is designed to eliminate unproductive hierarchies, place the highest emphasis on team member development and performance, provide clear avenues for training and learning, and put economists on a clear path toward becoming international experts.
- **Communications and Transparency (Chapter VI):** Perhaps the most important innovation of the prudent risk management approach is its explicit focus on uncertainty, and designing a framework to help policymakers design policies amid uncertainty that are robust against a range of outcomes. This approach requires an extremely high level of transparency, supported by a best-in-class communications framework with clear objectives, segmentation strategy, multi-pronged toolkit, and well-versed staff, in order to be effective in practice.

- **Accountability Framework (Chapter VII):** As public sector institutions, central banks have a duty to remain accountable to the public whom they are appointed to serve. Building upon the principles of high transparency and good governance that motivate the prudent risk management approach, the framework emphasizes taking a *proactive* approach to accountability, where the central bank has in place a systematic approach for regularly communicating the conduct of monetary policy with the public at large.

These core components of the FPAS Mark II institutional framework are described in greater detail in the sections below and in the following two chapters.

Processes and Procedures: The Policymaking Cycle

Good decisions are supported by good processes. Processes that uphold the principles of the previous chapters contribute to a culture and environment of genuine policy deliberation, leading to decision making that is unbiased and evidence based.

The role of the policymaking round has undergone significant changes under the risk-management approach compared to the previous framework. Previously, much of the current analysis and scenario-building took place during the policymaking round itself. However, under the current monetary policy framework, there is a stronger emphasis on transparency and human capital development objectives, with same-day publications and more compact team structures. The focus has shifted more towards documenting the work completed prior to the policymaking round, rather than conducting new analysis during the round itself. This practical adjustment is essential to ensure that all external communication documents are accurately prepared by the decision day.

While the policymaking round officially begins with the kick-off meeting, in practice, it is a continuous process with no distinct start or end. Each round builds on prior analyses, insights from previous policymaking rounds, weekly analytical briefings, and institutional knowledge gained from Board discussions. The kick-off meeting primarily serves as a formality to signal the start of the policymaking round. This meeting is largely for the benefit of the Board, where structured information and analysis around the key risks and uncertainties—most of which has already been completed—are presented.

FIGURE 5.1
Approximate Workload Distribution during Policymaking Rounds

50%	25%	25%
Preparation of External and Internal Communication Documents in Two Languages	Current Analysis	Scenario Building

Breaking down the tasks during the formal policymaking round (after the kick-off meeting) reveals that approximately 50% of the workload involves drafting reports, preparing external communication documents, and creating presentations. Only around 25% is dedicated to new analysis, updating the current state of the economy, and around 25% involves scenario building exercises around key risks and uncertainties. The majority of the effort is concentrated on drafting exercises, which are based on the analysis conducted prior to the official start of the policymaking round.

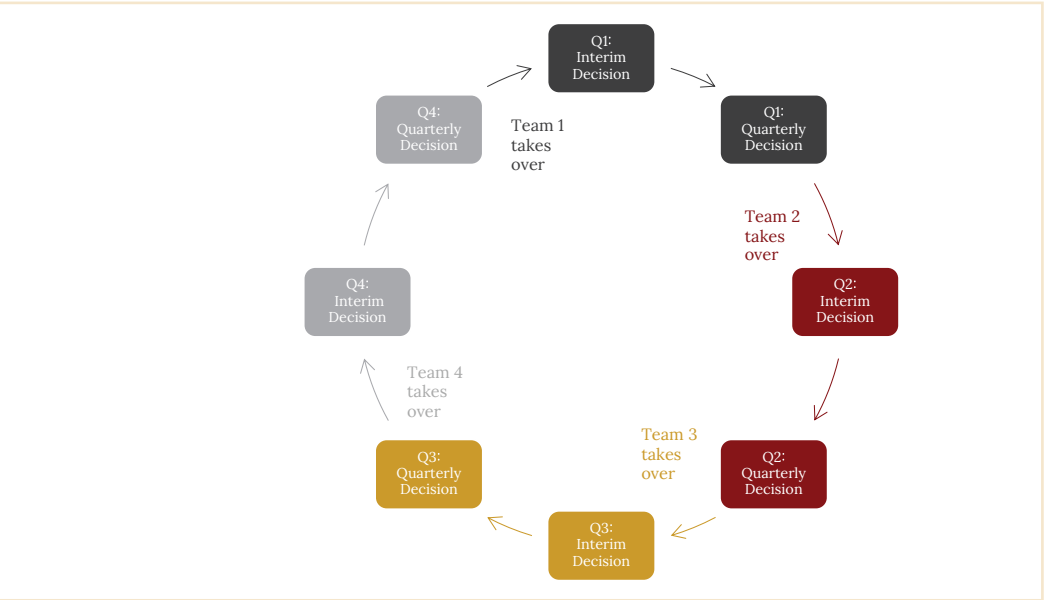
The CBA has eight fixed-action policy decision dates throughout each year. These dates are released on the CBA website at the end of the preceding year. On an alternating basis, four of the eight decisions (one per quarter) follow a full policymaking round. These are known as “quarterly decisions,” and are accompanied with a full Monetary Policy Report. The

remaining four decisions, referred to as “interim decisions,” follow a more streamlined process.⁵⁸

Team Structure

As defined in the human capital framework, the MPD staff are divided into four teams of six economists, which rotate roles in each quarter. Each team is responsible for leading one full policymaking cycle during the course of one quarter, which includes one interim decision and one quarterly decision. This long cycle begins the week following the preceding quarterly policy decision, covers the next interim decision, and concludes with the completion of one policymaking round in support of the quarterly decision, described in the following figure.

FIGURE 5.2
Policymaking Cycles during One Calendar Year



58 The Board may also decide to make emergency decisions outside of this decision calendar (in the event that extreme circumstances require it), per CBA law.

Within each six-person team, during the policymaking cycle all six team members are responsible for the same, core tasks that constitute the essence of the staff's work in the rounds: current economic analysis, drafting the core reports, preparing presentations, and presenting these findings to the Board in the weekly meetings. However, to better support greater organization and efficiency in the process, some specialization of roles and areas of focus are assigned to each team member, as follows:

TABLE 5.1
Policymaking Cycles during One Calendar Year

Team Member	Specialized Role	Area of Focus in Current Analysis
Team Member 1	Policymaking Round Coordinator	Domestic & Global Economy
Team Member 2	Board Coordinator	Domestic Economy
Team Member 3	Board Coordinator	Domestic Economy
Team Member 4	Not-the-Model Operator	Global Economy
Team Member 5	Not-the-Model Operator	Global Economy
Team Member 6	N/A	Domestic Economy

The specialized roles are comprised of the following:

- **Policymaking Round Coordinator:** the coordinator is the organizational lead of the team, responsible for setting the direction for staff analysis, managing all organizational processes (setting and leading internal meetings, setting deadlines, assigning tasks, etc.), and presenting findings to the Board during the flagship meetings (Kick-Off, Scenarios Meetings, and Final Deliberations). Importantly, the coordinator is not intended to be an authoritarian “despot” who micromanages the team under an excessively hierarchical system. Rather, this individual is merely in charge of coordi-

nation and organization, and all team members have an equal role to play in their intellectual and analytical contributions, consistent with the overall team culture and human capital framework of the CBA MPD.

- **Board Coordinator:** two well-trained team members, at Level 2 or above, are assigned to work directly with the Board members and assist them in drafting their Initial Macro Risk Assessments (see the next pages) during the first two weeks of the policymaking round.
- **Not-the-Model Operator:** these two individuals are responsible for quantifying the illustrative scenarios through the use of the CBA's core models. Considering the emphasis that we place on narrative-based economics and critical thinking, rather than falling back on model outputs as a substitute for thinking, we aptly refer to these individuals as “not-the-model” operators.

Weekly Analytical Briefings

At the heart of the processes supporting the policy decisions are weekly analytical briefings to the Board by the Staff. These weekly briefings take place, without fail, every Wednesday afternoon, ensuring that the monetary policymaking process and the discussion of the key risks and uncertainties is a *continuous* process that is not confined to the days or weeks leading up to each decision.

The weekly briefings are intended to provide a platform for the Staff to present to, and discuss with, the Board the most important policy-relevant issues and analysis that inform high-quality decisions. Each week, the staff selects a topic that it deems to be particularly relevant from a policy perspective (e.g. labor market conditions in Armenia, global commodity price developments, the service sector in Armenia, and so on), prepares high-quality analysis, and presents it to the Board. As discussed in the preceding chapter, staff analysis is required to be

narrative-based and test multiple hypotheses and possible interpretations of the data. This professional, multi-angled analysis provides a platform for Board members to make their own judgments in the context of the risk management model. The analysis conducted in service of the weekly briefings comprises the bulk of the analytical work that the staff completes, and is the main input to the text for the monetary policy reports and the contents of the flagship meeting presentations. This significantly decreases the burden on the staff during the four-week policymaking rounds, as the core analysis is distributed evenly over the course of the quarter instead of being highly concentrated in a short period.

In tandem with the narrative-based analysis that is presented, the Board also receives a weekly-updated statistical chart pack, covering all relevant data points in the global and domestic economies. All the presentation materials and statistical packages supporting the meeting are organized, shared with the participants and archived.

To supplement the MPD staff's presentation, other departments—including financial markets and financial stability—provide briefings on financial market developments (e.g. lending activity/rates, bond markets, monetary policy operations, and so on), in the context of monetary policy transmission.

Most importantly, the meetings provide a platform for Board members to actively engage with the key issues on a weekly basis. During the meetings, Board members are expected to propose hypotheses and offer interpretations of the staff's analysis that can later be professionally analyzed and presented by the staff for further Board discussion. This ensures that the analytical process is continuous and actively engages Board members' thinking. Thus, the most important purpose that the weekly briefings can serve is to ensure the analytical process supporting policy decisions is continuous and allows for effective collaboration between the Board and the Staff.

Quarterly Decisions

As described above, the monetary policy process is a continuous cycle of analysis, policy advice, and decision making. Within this broad cycle, details such as the timing, length, and purpose of meetings have been designed to uphold the principles described in preceding sections. The broad shape of each cycle is set out in Figure 5.3.

FIGURE 5.3
The 29-Day Policymaking Round for Quarterly Decisions

T-29	Kick-Off Meeting	Concise staff briefing to Board about current economic drivers and uncertainties. Robust and open discussion between Board members about major concerns and risks.
Next 2 weeks	Initial Risk Assessments	Board members each prepare one-page narrative of the risks, uncertainties, and issues that need to be managed in the current policymaking round
T-15	Scenarios Meeting	Board members present their Initial Risk Assessments, summarized in the Taxonomy of Scenarios. Staff presents illustrative Case A & B scenario narratives, to be quantitatively modeled.
T	Decision Day	Staff presentation covering current and underlying economic conditions Board deliberations and final decision

The policymaking sequence proceeds as a 29-day process that is intended to be collaborative and iterative, and result in greater efficiencies from a resource allocation and time perspective. Below, we provide a general outline of the policymaking process. However, having a clear sequence of events does not imply that the process proceeds mechanically or by rote. Quite the opposite—the 29-day policymaking round is a dynamic process that prioritizes a lively culture of debate and discussion, capitalizes on the unique attributes and critical thinking of each Board and staff member, and provides important flexibility and agility to the Board.

- **Kick-Off Meeting:** To begin the policymaking round, the Board meets in a general meeting intended to spur robust discussion

about the sources and potential directions of the major uncertainties that represent causes of concern. The meeting begins with a brief staff presentation on major economic uncertainties, which is informed by the staff analysis conducted to date and presented in weekly analytical briefings, in order to help inform the discussion. The staff briefing also includes a presentation of the Market Reference Scenario, which serves as a starting point for discussing the key uncertainties and beginning to build the various Case A and Case B scenarios. The staff also presents various procedural and organizational elements, including the team members' roles during the round, timeline, and other administrative issues. The purpose of the discussion is to fuel deep thinking about scenarios and other concerns the Board may have (e.g., a looming financial crisis, underpricing of risk, high- and low-inflation traps, etc.), rather than being driven by specific numbers or projections. Ideally, the Board and the staff would spend most of the meeting on discussing their concerns and risks in mind rather than on the recent data. Moreover, from the staff's perspective the meeting mostly summarizes the analyses and discussions during weekly analytical briefings preceding the kick-off. In extraordinary force majeure instances, the meeting can also be used to recalibrate the Board's approach and work plan in the round.

- **Develop Narratives of Relevant Scenarios:** Following the kick-off meeting, the Board members each outline the essential narratives and stories that would be part of the list of Case A and Case B scenarios, according to their own thought processes. Case A would be a scenario where the policy rate path has to be higher than market expectations (hawkish scenario) to bring inflation back to the target, and Case B would be the scenario where the policy rate path has to be lower than market expectations (dovish scenario). The Board would not be tasked with creating these scenarios themselves, but rather, would focus on developing the key ideas and ingredients that would serve as important inputs to the scenarios. These ideas would be described in their "Initial Macroeconomic

Risk Assessments” (also referred to as “one-pagers”) which provide succinct one-page narratives outlining the high-level ingredients and assumptions related to what they would include in their preferred list of Case A and Case B scenarios. The ideas and ingredients submitted by Board members in these one-pagers serve as one of the most important inputs to the Taxonomy of Scenarios.

- We emphasize that these one-pagers are not pre-deterministic, and Board members are not in any way tied down to the ideas they express in this preliminary stage. Rather, the hope and expectation are that when Board members arrive at Decision Day, they feel completely comfortable about changing their initial viewpoints, particularly considering the debates and discussions of the preceding weeks. This is a feature—not a bug—of FPAS Mark II.
- **Process for Drafting One-Pagers:** The process for drafting the one-pagers lasts approximately ten working days, beginning on T-29 (Kick-Off) and continuing until the deadline for submissions (T-18). Board members are allocated two well-trained staff members (known as Board Coordinators) to aid them in this process. The process proceeds as follows:

Initial Brainstorming Session (1 Hour): During the first week of this process, the Board Coordinators meet individually with each Board member for a brief brainstorming session. Board members must arrive to this meeting prepared with a list of initial bullet points about their key risks and issues. In this session, the role of the Board Coordinators is to facilitate discussion with Board members, ensure that the issues align with the Three-R principles, ask questions to spur dialogue, and provide clarifying information about what was covered in the Kick-Off meeting and preceding Weekly Analytical Briefings.

Initial Drafting (2-4 Hours): The Board Coordinators then spend two to three days preparing first drafts of the Initial Macro Risk

Assessments for each Board member, based on the items that were discussed in the initial brainstorming session.

Draft Iterations (1-2 Hours): After sending the initial drafts to each Board member, they then spend the second week of the process iterating on the draft (primarily over email) for both content and style.

- **Submission to Head of MPD:** Once the Board member is satisfied with the quality, content, and style of their one-pager, he or she is required to submit it to the Head of the MPD for the official record by 13:00 on T-18 (three days in advance of the Scenarios Meeting). This is a purely administrative procedure; the Head of MPD cannot approve or reject the submissions. These one-pagers are disclosed externally with a 12-year lag, along with other internal materials per the CBA monetary policy communications strategy.
- **Scenarios Meeting:** Approximately two weeks before the decision day, a Scenarios Meeting is held between the Board and the Policy Round Coordinator. After having the big picture of Board concerns, under the authority of the Governor, the Policy Round Coordinator uses the Scenarios Meeting to present, for Board approval, two key issues: the Taxonomy of Scenarios, and the proposed narratives of the illustrative Case A and Case B scenarios. The Board's main role would be to contribute to the process through buy-in and support, rather than focus on formulating the specific assumptions. The Board would leave the meeting with a solid mental picture about how the scenarios will be fleshed out, and place trust in their staff for producing the scenarios and the Monetary Policy Report.
- **Scenario-Building:** The Policy Round Coordinator leads daily production meetings with the staff. Through a collaborative and iterative process, the Policy Round Coordinator systematically and clearly builds out the market reference and illustrative Case A and Case B scenarios, quantifying the scenarios through semi-struc-

tural core quarterly production models and satellite models, where feasible. Particular attention would be paid to their policy implications (in terms of the forward paths for instruments needed to achieve convergence on objectives).

- It is worth emphasizing that the Policy Round Coordinator's selection of Case A and Case B scenarios would not be prescriptive and would not tie down Board members to a predetermined position. The Policy Round Coordinator's formulation and elaboration of these scenarios are intended to serve a purely illustrative purpose and provide reference points to evaluate the urgency of protecting against drifts or slides towards Dark Corners. These scenarios would then aid the Policy Round Coordinator in building a clear narrative, communicating policy, and producing monetary policy report.
- **Submission of Final Case A and B Scenarios:** The Policy Round Coordinator submits the final narrative and quantification of the illustrative Case A and Case B scenarios to the Board three days in advance of the Policy Decision, together with the full MPR. Once these scenarios have been submitted as final, they will not be subject to any further changes.
- **Policy Decision:** Against the backdrop of the prior 28 days' lively discussions and debates of the multiple scenarios and risks, along with the submission of the final illustrative Case A and Case B scenarios, Board members would take a vote on the policy decision. The Board's decision would be announced in tandem with issuance of the Monetary Policy Report, which would clearly communicate through a narrative approach the Board's decision with reference to the scenarios and ingredients considered by policymakers to be most relevant to the current situation and its uncertainties. As part of the decision-making process, Board members would make submissions that include: the policy action they propose; how that action connects to what they believe may happen in the future and

its ensuing policy implications; and their commitment to changing course if new information arises. The policy decision is followed by the Governor-led press conference with members of the media, which is live-streamed to the public.

On decision day, the CBA communications follows the timetable outlined in Table 5.2.

TABLE 5.2
Communications Timetable on Decision Day

GMT+4	Communications Timetable
12:00	Monetary Policy Decision Published with Executive Monetary Policy Statement (Press Release)
14:30	Press Conference
18:00	Monetary Policy Report Published (Quarterly) Transparency Report Published

Following the quarterly policy decision usually more technical meetings with analysts are held. After the final decision and its announcement, a new production process starts with a continuous reassessment of the most relevant risk scenarios to continue the process. For a full description of the detailed staff processes that take place in each production round, refer to the appendix.

Interim Decisions

The decision that follows the quarterly decision is known as an interim decision, as it does not follow the full policy round and is not accompanied with the publication of a monetary policy report, it doesn't also end with follow-up meetings with analysts. Rather, the interim decision follows a more streamlined process, leveraging many of the analytics

prepared during the preceding round (including the illustrative case scenarios).

The process for interim decisions follows this approach:

FIGURE 5.4
The Policymaking Cycle for Interim Decisions

T-41	
T-34	Weekly Analytical Briefings: Staff presents to the Board key economic developments, in a narrative-based and hypothesis-testing format. This means that global and domestic economic developments are analyzed and discussed in the context of the taxonomy of scenarios and their implications on policy.
T-27	
T-20	
T-13	
T-6	
T	Policy Decision and Communication

Similar to the process leading up to the quarterly decision, the policy-making cycle during the interim decisions is intended to follow a dynamic approach. The analytical process and discussions among Board members and between Board and Staff primarily take place during the standard regular weekly meetings. The decision meeting follows the same approach as the final deliberations of the quarterly decision round, as summarized in the subsection above.

The interim decision is announced to the public via the Executive Monetary Policy Statement, which contains a brief description of the Board’s decision and its rationale, as well as a concise summary of economic conditions by the Staff. This is followed by the Governor-led press conference with members of the media, which is live-streamed to the public. For greater detail about the communications process, refer to Chapter VI. The timetable for communications follows the same approach as for the quarterly decisions, except that the MPR would not be published.

The analytical process and discussions among Board members and between Board and Staff primarily take place during the weekly briefing meetings. During each weekly briefing meeting, the Staff provides the Board with an update on new developments in the economy, including new data and information that can motivate new scenarios in the face of uncertainty. Importantly, the weekly briefing meetings are not intended to be a simple information-sharing exercise. Rather, they are structured to follow a narrative-based format, where the new information is discussed as part of the broader narrative about economic developments, risks, and uncertainties. In this sense, they provide continuity with the narratives that were deliberated upon during the meetings of the preceding policy round. Thus, the new information or developments that have emerged each week are analyzed and presented in the context of the “taxonomy of scenarios,” which contains a snapshot of the multitude of policy-relevant risks that the Board, Staff, and outside experts are considering at that point in time.

Research, Surveillance, and Analysis

In addition to the processes related to the eight fixed-action dates and their accompanying production cycles, the Monetary Policy Department is continuously engaged in conducting high-quality research and monitoring the economy as a part of current analysis. The organizational structure of the department (where only one to two teams are engaged in the production round each quarter, freeing the other two teams to work on research and analysis) plays an important role in supporting the continuity of research and analysis, even during policymaking rounds.

Monetary Policy-Relevant Research

The CBA prioritizes high-quality research as an important component of good monetary policymaking. Rather than treating research as a “nice to have” component of the staff’s responsibilities that is done during

downtime, research is embedded into staff responsibilities as an essential function. This is consistent with the continued development of the Dilijan Research and Training Center (where the MPD is located) as a high-quality regional and global hub for economic research.

Under the FPAS Mark II organizational structure, staff spend approximately half of the year engaged in research, with the other half devoted (to varying degrees of intensity) to the production rounds. Staff are expected to conduct research on topics that are relevant for monetary policy. These include, but certainly are not limited to, issues including:

- Fundamental economics questions (long-term equilibrium real interest rates; unobservable variables such as NAIRU and potential output; alternative measures of inflation; and so on)
- “Hot Topics” that are contemporaneously relevant (specific research topics arising from policymaking rounds, including the implications of potential risks or shocks)
- Global economics research (including research on other countries and economies, case studies of other countries’ experiences, and so on, which may not be directly relevant for policymaking in Armenia but provide a solid foundation for development)
- Framework infrastructure and Model development/improvement.

In this capacity, MPD staff are encouraged to collaborate with researchers from international organizations and members of other CBA departments, including members of the Dilijan Training and Research Center of the CBA, also based in Dilijan.⁵⁹ High-quality research at the CBA follows HEAT principles:

59 The DTRC covers broad topics in economics that may or may not be relevant for monetary policy. There is naturally overlap between some of the topics explored by the DTRC and MPD, which provides excellent opportunities for collaboration between teams.

- **Historical Narrative:** good research strives to tell a macro-consistent story using the historical narrative approach. Arguments and findings must be appropriately contextualized, and equal attention should be paid to qualitative research.⁶⁰
- **Economics:** research must be based on solid and critical economic thinking, rather than merely relying on over-modeling or references to authority or literature to argue a point.
- **Accountability:** research methods and data must be continuously documented and be made readily available to other staff members. This ensures institutional knowledge-building and continuity over time, including the ability to build upon research completed well in the past.
- **Technical Expertise:** while models and technical skills cannot serve as a crutch, good research nonetheless utilizes best-in-class technical tools and reflects the very best in technical expertise.

Board-Staff Collaboration

The successful functioning of the framework in practice depends not just on processes and procedures; it most of all relies on effective human capital—among both decision-makers and economists—to ensure that its practical, real-life application works in service of its objectives. In many ways, this is about the culture of the CBA's Board and its Monetary Policy Department. While culture is often intangible and immeasurable, the combination of strong leadership and vision from the institution's highest levels with systematic, institutional arrangements governing internal relationships, processes, and communications can go a long way in helping cultivate this desired corporate culture.

⁶⁰ The historical narrative approach was notably popularized by Romer and Romer (2002).

For the Board, the ability to devise policies of least regrets—which derive from robust deliberations around a diverse array of perspectives—depends upon fostering a culture of adversarial collaboration (Kahnemann) that is explicitly designed to avoid groupthink and consensus-seeking. For the Staff, whose key role is supporting the Board, through high-quality analysis, to make informed policy decisions, the emphasis is on professionalism, analytical rigor, and critical thinking (“parallel/lateral thinking” per de Bono). This section explores this culture in practice, as well as practical arrangements governing the delineation of responsibilities between the Board and the staff. In addition to the processes outlined in the preceding section, these institutional arrangements relate to the delineation of roles and responsibilities between the Board and the Staff, as well as standards governing internal communication within and across these two bodies.

Role of the Board

In matters of monetary policy, the role of the Board, on paper, is rather straightforward: to ensure the price stability objective is met over the medium-term horizon. But in practice, this raises a basic but critical question: how do we ensure that the Board is able to consistently achieve and maintain price stability, particularly in times of high uncertainty and economic turbulence? As the previous chapters outlined, the prudent risk management approach is designed precisely to answer this question: to provide a systematic framework that allows policymakers to make high-quality decisions amid high uncertainty. Part of the framework relates to the intellectual or theoretical principles—the emphasis on risk management, least regrets, and scenario analysis—that govern how policymakers should conceptually approach the task of monetary policymaking. Another component of the framework is about the institutional arrangements that determine processes, workflows, and so on, which support the practical implementation of the aforementioned principles on a day-to-day basis. But arguably the most important component of the framework—which allows for an effective and durable synthesis of the conceptual underpinnings of the prudent risk man-

agement approach with the day-to-day operational and institutional arrangements—relates to the culture of Board deliberations that govern how policy decisions are actually made.

In order for decisions to be made according to a risk management and least regrets approach, the culture of Board deliberations needs to shift somewhat. The risk management framework is built upon the deliberation of a diverse array of risks, uncertainties, and policy-relevant scenarios, which brings about a new mode of interaction among Board members, for three key reasons.

First, the framework is designed such that all Board members have equal weight and input in the deliberation around the key scenarios. At the beginning of each policymaking round, Board members independently prepare one-page initial macroeconomic risk assessments, where they list out the main risks and uncertainties (subject to the 3R constraint) that they deem to be the most pressing and worthy of internal discussion and external communication. These independently-compiled initial risk assessments serve as the basis for compiling the master taxonomy of scenarios, which houses the full set of policy-relevant scenarios that are used to guide internal Board deliberations and which serve as a flagship external communications device. This provides a structured avenue for ensuring that the individual concerns of each Board member are heard, and meaningfully contribute to both internal discussions and external communications. This eliminates the pressure on Board members to adopt the views of other (usually more experienced or convincing) Board members, and allows individual perspectives, rather than groupthink, to flourish.

Second, the least regrets decision-making model requires decisions to be motivated by the need to manage certain risks and uncertainties in order to prevent certain scenarios from materializing. Naturally, when casting their vote for the policy decision, no two Board members will be motivated by the same exact set of risks or necessarily seek to avoid the same types of outcomes. Even when casting the same vote (e.g. minus

25 basis points), Board members may be motivated by entirely different factors (e.g. concerns about weak labor market conditions for one Board member and fears of a rapid loosening of global interest rates for another). One of the greatest benefits of the least regrets decision-making model is that it provides room for each Board member to cast a vote according to his or her own, independent assessment of what outcomes they would most regret and what risks and uncertainties would need to be managed in the medium-term to avoid those outcomes.

Finally, the framework is built on the principle of individual accountability, which not only aids in avoiding groupthink and consensus-seeking, but also, provides a safeguard for ensuring that decisions are of high-quality and in service of the price stability objective. When casting their vote for the policy decision, Board members are required to submit a succinct explanation of the rationale behind their vote, describing the key issues that they are most concerned about, and why their vote for a certain policy decision would allow the central bank to manage these issues and avoid undesirable outcomes. These vote explanations are published on the same day as the policy decision, allowing external audiences to not only fully understand the logic of the decision but also where there was divergence and alternative thinking within the Board. If any Board member has a different set of beliefs, concerns, or regrets than the majority, they have a clear and unassailable outlet for communicating their views to outside audiences.

Together, these principles to Board deliberations can be summarized as a culture of “adversarial collaboration,” where frequently opposing views are allowed to coexist but work in service of a broader goal of ensuring price stability.⁶¹ In contrast to adversarial thinking—where the emphasis

61 For further reading on Kahneman’s conception of adversarial collaboration, refer to Kahneman and Tversky (1979); Gilovich, Medvec and Kahneman (1998); and Mellers, Hertwig, and Kahneman (2001). Adversarial collaboration, in Kahneman’s sense, is a method of inquiry in which opponents in a theoretical dispute rely on agreed-upon standards of evidence and reasoning to jointly frame questions and test hypotheses. It reflects Kahneman’s broader view that good-faith collaboration depends not on persuasion or consensus-seeking, but on encouraging opposing views to coexist to work in service of a broader goal.

is on proving who is right in order to win a consensus—adversarial collaboration accepts, and encourages, a diversity of views on any given issue. This reflects the framework’s basic recognition of high and pervasive uncertainty as the defining characteristic of monetary policymaking, and provides an outlet for policymakers to coexist within this uncertainty. Instead of forcing policymakers to overcome the differences in their views, the framework encourages them to maintain divergent beliefs, viewing this as a critical foundation for promoting robust and well-rounded policy deliberations that in turn support higher-quality and more effective monetary policy decisions. This is the essence of the culture of adversarial collaboration: allowing opposing beliefs to coexist, but providing the right degree of safeguards to ensure that they work symbiotically in service of a broader, shared goal of ensuring price stability.

Role of the Staff

Where the basic function of the Board is to make policy decisions, the role of the Staff, too, is rather straightforward on paper: to support the Board, through rigorous economic analysis, in making these high-quality and effective monetary policy decisions. Taken a step further, the job of the staff is to enable the Board to operate within a culture of adversarial collaboration and make decisions according to a “least regrets”, risk management, and scenario-based approach. Thus, if the job of the Board is to make subjective judgments (e.g. prioritizing risks, seeking to avoid certain outcomes, voting for a certain policy action, etc.), the role of the staff is to remain as objective and professional as possible, while supporting critical thinking and a culture of adversarial collaboration among the Board.

How can the staff support the desired Board culture of adversarial collaboration described above? The chief mechanism is the preparation and regular sharing of high-quality, analytically rigorous, and comprehensive research and analysis. This includes both current economic analysis (related to the current and underlying developments in the global and domestic economies) as well as big-picture research topics (related to conceptual issues); these are discussed at greater length in this chapter.

A few conceptual considerations about the role of the staff are worth emphasizing here. Because the prudent risk management approach is built upon the consideration of multiple scenarios in the face of high uncertainty, staff analysis and thinking must follow a similar logic that derives from this emphasis on uncertainty. When considering any economic issue (be it a topic as “simple” as unemployment or as “complex” as the output gap), the staff must approach the topic through the lens of uncertainty (including uncertainty about the data/measurement, its interpretation, and its implications). In practice, this requires analyzing any economic issue from a wide number of perspectives, preparing and testing multiple hypotheses, and constantly seeking alternative interpretations of the underlying data. Rather than placing judgment on what is the “most correct” interpretation of any given data point, the staff should try to comprehensively put forth and analyze all sensible interpretations of the data. This requires a high degree of professionalism among the members of the staff, as well as strong critical thinking, communication, and analytical skills.⁶² The staff present this multiplicity of interpretations and hypotheses to the Board; the judgment on these interpretations rests on the decision-makers themselves. This type of hypothesis-testing and objective openness to a wide array of interpretations on the part of the staff forms the analytical backbone of the risk management-based approach to monetary policy. In a sense, this role and culture for the staff is consistent with Edward de Bono’s conception of “lateral thinking” or “parallel thinking,” which emphasizes the importance of avoiding specific beliefs and instead acting as professional, critical thinkers who are able to describe and tell equally well-articulated stories and scenarios on both sides of the equation.⁶³

62 These aptitudes are part of the core requirements for macroeconomists at the CBA Monetary Policy Department. The human capital framework, described later in this book, is designed to facilitate the cultivation of these skills and ensure steady and upward progress for staff as they work to develop international expertise in their field.

63 See Edward de Bono, *Lateral Thinking: A Textbook of Creativity* (1970). A good illustration of his ideas is the red hat and black hat metaphor. The red hat represents intuition and emotion—unfiltered, subjective reactions—while the black hat embodies critical judgment, the disciplined search for flaws and risks; together they illustrate how separating feeling from evaluation can support greater creativity and rigor in team thinking.

As a simple example, let us consider a case regarding labor market conditions in the first half of 2024, which illustrates the clear delineation of roles and responsibilities between the staff and the Board and the benefits of this approach. The unemployment rate in Armenia increased to 15.5% in 2024Q1, up from 13.1% in the prior quarter. How should the staff analyze and present this issue to the Board? The first step would be to closely drill into the data, and without any subjective biases or judgments, form and test a series of sensible hypotheses about the state of the labor market. One hypothesis might be that the uptick in unemployment represented a significant weakening in labor market conditions, posing the risk of creating a weak demand environment. Another hypothesis, based on a closer analysis of the data, might be that the increase in unemployment was not driven by increases in labor supply; this, coupled with data from the State Revenue Committee showing growth in the number of registered employees as well as above-target wage growth, would suggest that labor market conditions were not nearly as weak as the unemployment number suggested at face value. A third hypothesis might look somewhere in the middle. The staff would then test these hypotheses with the highest degree of rigor and professionalism and present the findings to the Board, without any subjective judgment or assessments of how policy ought to react. This unbiased and comprehensive analysis by the staff allows the Board to consider a range of scenarios (e.g. weakening, stable, or still overheated labor market conditions) and their policy implications, and devise policies of least regret that guard against the adverse scenarios materializing. When the staff provides wide range of possibilities, it allows the Board to develop a more comprehensive view about the issue at hand and provides a place for different interpretations in support of risk management. In this type of framework, the question of policy and what to do with interest rates lies solely with the Board; the job of preparing professional analysis to encourage lively and informed debate around a number of scenarios lies with the staff.

This delineation of roles and responsibilities between the Board and the staff, and these standards for analytical professionalism, serve a number

of purposes. First, they allow for an analytical framework that emphasizes the persistence of uncertainties, by forcing staff to analyze a wide array of views around any given economic issue and be able to support all types of arguments with equal rigor. This is a necessary precondition for the scenario analysis that is at the heart of the prudent risk management approach. Second, they provide a platform for Board members to enter into lively debates and deliberations, where a diversity of views is encouraged instead of convergence to any one belief. This is the staff's most important contribution to creating a culture of adversarial collaboration among the Board that contributes to more informed, accountable, and high-quality decisions.

Analytical Tools to Support FPAS Mark II

Measurement Proxies for Price Stability⁶⁴

Although the headline CPI remains the key inflation indicator to follow from the monetary policy perspective, different components of it matter for a detailed and thorough discussion and communication of policy decisions, especially in the framework of risk management. The key question comes in how should we decompose the CPI to better help monetary policymakers make better decisions and communicate policy more effectively? This question was put at the core of the research for Non-Traded Sticky Price Inflation, where a decomposition of the CPI is designed from the perspective of the modern monetary policy transmission mechanism with an emphasis on supply factor and exchange-rate driven flexible components and more demand and inflation-expectations driven sticky components.

Traditional 'underlying' inflation measures like core, median, or trimmed mean are often approached statistically, focusing on eliminating

⁶⁴ The editors express their particular gratitude to Anzhela Papikyan for developing the Non-Traded Sticky Price Inflation measure. This section includes selected excerpts from her paper, Papikyan et al (2023f).

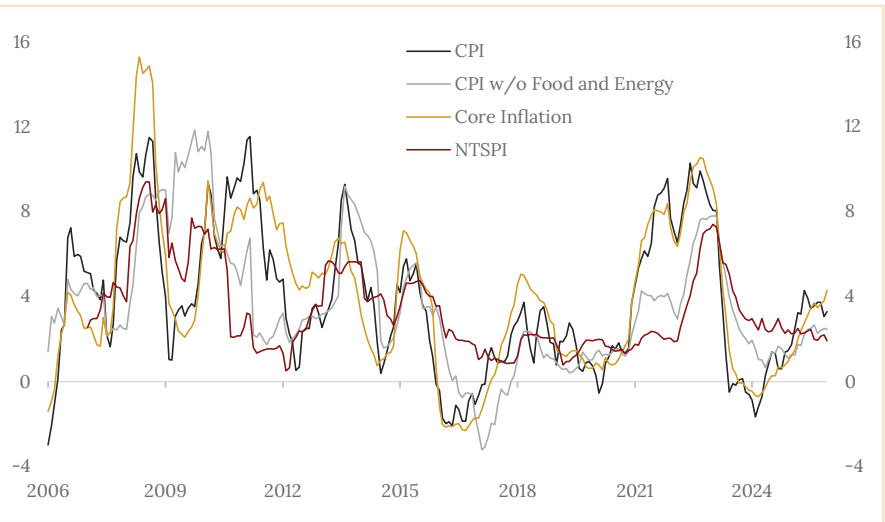
volatile items without deeply considering the economic rationale behind categorizing items into different buckets for analytical clarity. New Open Economy Macroeconomics provides a conceptual framework for differentiating these price buckets: prices sensitive to exchange rate and supply factor fluctuations (flexible) and those less sensitive (sticky), which are crucial for evaluating the effectiveness of monetary policy over time. In the Dornbusch overshooting sticky-price model, fast-moving asset markets contrast with the more sluggish segments of the goods market, producing exchange rate overshooting dynamics. Internationally traded goods, directly impacted by the exchange rate, are categorized as flexible prices, while non-traded items, such as most services, fall under sticky prices.

Distinguishing between traded goods prices, affected by the exchange rate, and non-traded goods prices is crucial. For instance, sticky prices are important because they respond more slowly to market changes than flexible prices, offering valuable insights into inflation dynamics and expectations. Meanwhile, flexible prices are influenced by unique, or idiosyncratic, shocks, and can adjust quickly to market conditions and offer early warnings about inflationary trends. If monetary policy fails to adequately respond to these signals, particularly under conditions of generalized excess demand affecting these markets, there is a risk that this inflationary pressure will spread into stickier segments of the economy, like wages and non-traded sticky prices. If these pressures take hold, then a much more aggressive policy adjustment might be required, resulting in unnecessary harm for the real economy.

The core of the problem lies in the nature of price indices, which aggregate the prices from a variety of unique markets whereby excess demand pressures are indicated not by isolated market behavior but when many of these markets collectively experience a state of excess demand. Recognizing and responding to these signals accurately is key to ensuring that monetary policy remains effective in stabilizing prices without unnecessarily reacting to transient or market-specific fluctuations.

The NTSPI basket for Armenia is composed of goods and services that are not traded internationally, such as housing, healthcare, education, and other services. In addition, the basket includes items such as utilities, transportation, and communication services. As of 2023, the non-traded goods and services account for approximately 15% of the Armenian CPI basket.

FIGURE 5.5
NTSPI and Other Measures of Inflation, 2006-2025



Source: Statistical Committee of the Republic of Armenia, CBA, Papikyan et al

Macroeconomic Modeling Toolkit

Since the onset of the COVID-19 pandemic, the global policy landscape has been shaped by a persistent and elevated level of uncertainty. This uncertainty has been exacerbated by multiple overlapping shocks—including geopolitical tensions, energy price volatility, supply chain disruptions, and more. These developments have fundamentally challenged the usefulness of baseline projections, as the world economy has become increasingly susceptible to non-linear, high-impact tail events.

In addition to serving as a major inspiration for the development of the FPAS Mark II framework, these developments also require a fundamental reassessment of the macroeconomic modeling tools used to support monetary policy-relevant economic analysis.

Such a framework requires analytical tools and models that are suited for scenario building, sensitivity testing, and credibility analysis. The traditional framework of the FPAS, developed by Berg, Karam, and Laxton (2006), has revolutionized the view of conducting monetary policy across the central banks, laying a strong foundation for modern monetary policy analysis. As its main analytical tool, the quarterly projection model (QPM) is considered the main guide for many central banks around the world that adopted inflation targeting. These types of models are based on the principles of New Keynesian macroeconomics, such as nominal and real rigidities, the existence of business cycles and rational expectations. An additional monetary policy rule is being implemented to adjust interest rate behavior to control inflation toward the target and anchor inflation expectations. The structure of such models is relatively simple and accessible. The CBA, among other central banks, implemented this analytical approach in tandem with the adoption of inflation targeting in 2006.⁶⁵

However, these conventional frameworks carry certain limitations. Notably, they rely on linear relationships, which may not hold during periods of heightened economic stress, and they treat credibility as an exogenous and static feature, overlooking how credibility could change based on policy performance. In times of uncertainty, the risks of missing nonlinear developments become especially dangerous, as the implications of policy errors themselves can unfold in a non-linear manner. To give a simple example, if policymakers fail to recognize that

⁶⁵ See Mkrtchyan and Stepanyan, 2006. Tibor Hledik and Jan Vlcek from the Czech National Bank played a key role in supporting the construction and development of the QPM model tailored for the Armenian economy. Mkrtchyan, Dabla-Norris and Stepanyan (2009) further develop a structural DSGE model with key extensions to incorporate specific structural characteristics of the Armenian economy.

the Phillips Curve becomes nonlinear when the output gap becomes increasingly positive, they may underestimate the costs associated with allowing the economy to remain overheated. The resultant nonlinear increase in inflation expectations can be extremely costly, requiring a much higher and longer increase in the interest rate, and an undue punishment of the real economy, to bring inflation back under control. The same is true for endogenous credibility, which can be very easily lost but is incredibly difficult to regain. Having an analytical framework that has these nonlinearities embedded in it is especially important in times of high uncertainty. In highly uncertain times, or when faced with varying interpretations of economic developments, an analytical framework that emphasizes nonlinearities better allows policymakers to understand the true costs associated with potential policy errors and thus make appropriate decisions that minimize their regrets. Therefore, nonlinear analytical frameworks are an integral part of the Prudent Risk Management approach.

The macroeconomic modeling toolkit used to support the FPAS Mark II framework at the CBA therefore includes the following three layers:

- **ENDOCRED:** core model, with crucial nonlinearities and endogenous credibility, used to quantify the illustrative scenarios
- **QPM:** linear model used for filtering history and discussing unobservables in a consistent manner
- **GPM:** 3-country (US, EU, Russia) plus commodities (oil, copper, food) linear model used for analyzing the global sector.

In addition to these three core elements of the model-based analytical framework, it also includes several *satellite tools* designed for quantitative disaggregation of scenarios, as well as for the calibration and discussion of special topics that require more elaborate modeling setups.

ENDOCRED Model⁶⁶

The ENDOCRED model incorporates several features from the traditional QPM introduced by Berg, Karam, and Laxton (2006) while introducing key innovations. Most notably, it endogenizes policy credibility, allowing it to evolve over time in a nonlinear manner depending on the central bank's performance. This is accompanied by a convex Phillips curve specification, which more realistically captures inflation dynamics, particularly during periods of high inflation or large output gaps. Furthermore, the model extends the IS curve by introducing a long-term effective interest rate, derived from interest rates across different maturities based on the expectations hypothesis and incorporating a time-varying term premium. This addition allows the model to better reflect the broader and persistent effects of monetary policy on output. Instead of relying on a standard Taylor-type rule, the ENDOCRED framework adopts a loss function-based policy design, enabling more flexible and context-sensitive responses, which are particularly relevant in periods of heightened uncertainty or when operating near policy limits. Another key innovation lies in the treatment of dollarization: the weight of external influences in the effective interest rate is explicitly linked to a dollarization parameter, which is itself inversely related to policy credibility. As credibility increases, dollarization falls, enhancing the effectiveness of domestic monetary policy with, highlighting an important feedback loop between credibility, transmission, and policy outcomes.

Phillips Curve

The model decomposes headline inflation (1) into three components: non-traded sticky price inflation (2); (see the preceding subsection), flexible prices (3), and regulated services (4), to better capture different price-setting behavior in the economy which may have different implications for monetary policy.

⁶⁶ This section largely derives from a forthcoming research paper by Ani Asoyan, "An Analytical Framework to Support the Prudent Risk Management Approach in Armenia" (2026).

CPI Decomposition

$$\Pi_t^{CPI} = w^{NTSP} \Pi_t^{NTSP} + w^{Reg} \Pi_t^{Reg} + (1 - w^{NTSP} - w^{Reg}) \Pi_t^{Flex} \quad (1)$$

where $w^{NTSP} = 17\%$, $w^{Reg} = 13\%$

Non-Traded Sticky-Price Inflation

$$\Pi_t^{NTSP} = \alpha_{ld} \Pi_t^{EXP} + \alpha_{lag} \Pi_t^{NTSP} + \alpha_{RMC} RMC_t^{NTSP} + EPS_t^{NTSP} + \varepsilon_t^{NTSP} \quad (2)$$

Flexible Price Inflation

$$\begin{aligned} \Pi_t^{flex} = & \beta_{lag} \Pi_{t-1}^{flex} + (1 - \beta_{lag} - \beta_{\pi}^M - \beta_{food}^M - \beta_{oil}^M) \Pi_t^{EXP} + \\ & \beta_{RMC} RMC_t^{flex} + \beta_{\pi}^M \Pi_t^M + \beta_{food}^M \Pi_t^{M_{food}} + \beta_{oil}^M \Pi_t^{M_{oil}} + \varepsilon_t^{flex} \end{aligned} \quad (3)$$

Regulation Service Inflation

$$\Pi_t^{Reg} = \gamma_{\pi^*} \Pi_t^* - \gamma_{\hat{r}p} \widehat{RP}_t^{Reg} + \varepsilon_t^{Reg} \quad (4)$$

The nonlinear specification of the Phillips curve is one of the most critical features to capture in modern macroeconomic models, particularly when analyzing economic conditions near the so-called “dark corners” of the economy, famously described by Blanchard (2014). We follow the work of Laxton (2024) and Kostanyan (2022), who emphasize the importance of modeling the Phillips curve as convex rather than linear. As output approaches its maximum level, the slope of the Phillips curve steepens significantly, reflecting the emergence of accelerated inflationary pressures. In the central region of the Phillips curve—where the output gap is near zero—the relationship tends to be more linear, corresponding to periods of mild inflation-output trade-off. On the left-hand side the curve flattens, reflecting conditions of high unemployment and deflationary forces.

Expectations and Evolution of Credibility

In this model, credibility depends on the extent to which medium- and long-term inflation expectations remain aligned with the central bank’s target. However, credibility as a concept is more about whether the monetary policy transmission mechanism is working by design whereby the exchange rate, long-term interest rates and asset prices operate as shock absorbers rather than amplifiers. In this sense, having high levels

of credibility is fundamental to achieving macroeconomic stability, as it underpins the effectiveness of monetary policy and by consequence helps anchor inflation expectations. The central bank builds credibility by achieving its inflation target on average over time. The phrase “on average” is key because inflation data contains significant noise, and even under optimal policy, inflation will not match the target every single period. In fact, it is neither feasible nor desirable to keep inflation constantly fixed at the target (Freedman and Laxton (2009)).

In traditional linear models credibility is still treated as an exogenous and static feature that is always perfect. In practice, however, credibility is rarely perfect—particularly in economies with histories of inflation volatility or policy inconsistencies. Under imperfect credibility, agents tend to rely more on actual policy performance—rather than stated targets—and on past inflation outcomes when forming their expectations, leading to a stronger backward-looking component. Even in environments with a high degree of credibility, backward-looking elements tend to persist due to institutional memory, adaptive behavior, or uncertainty about future policy actions. What’s more, the process by which credibility is lost and regained is nonlinear; credibility can erode very quickly due to policy errors but takes a very long period of prudent policymaking to regain. Our approach aligns with that proposed by Papikyan et al (2023), which conceptualizes credibility as a stock that evolves over time between the range of 0 (no credibility) and 1 (perfect credibility), in response to the central bank’s actions and its commitment in meeting policy objectives. Credibility (C) directly influences the formation of inflation expectations by determining the relative weight placed on past versus forward-looking information.⁶⁷

67 This conception of credibility—as an endogenous process that is directly impacted by the central bank’s actions—is integral analytical tool for policymakers. Policymakers place explicit emphasis on reducing the losses that may result from policy missteps. Such errors, by their very nature, erode credibility—an outcome that can be prevented or at least mitigated through an effective risk management approach. Consequently, the importance of credibility both conceptually and analytically, as the central bank’s overarching objective is to prevent any unnecessary or avoidable loss of it. Furthermore, continued investment in the policymaking process and the enhancement of institutional capacity play a crucial role in fostering public trust in the central bank and its commitment to maintaining price stability.

Inflation Expectations

$$\Pi 4_t^{EXP} = C_t^{stock} \Pi 4_{t+4}^{NTSP} + (1 - C_t^{stock}) \Pi 4_{t-1}^{NTSP} + \kappa^{High} \cdot prob_t^{High} + \kappa^{Low} \cdot prob_t^{Low} + EPS_t^{EXP} + \varepsilon_t^{EXP} \quad (5)$$

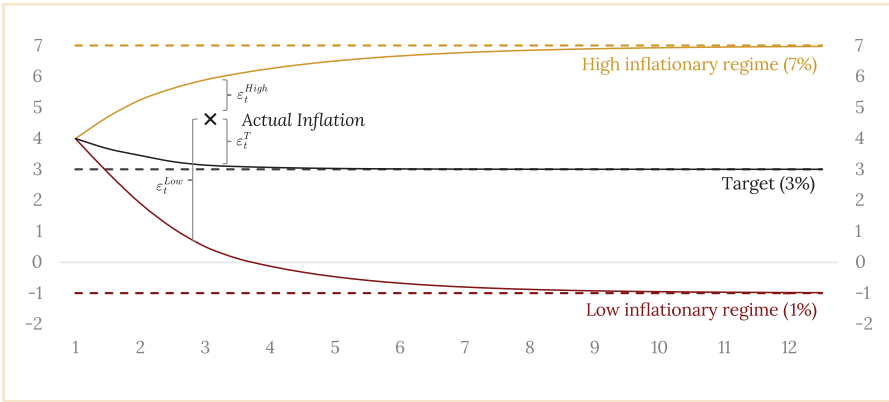
Following the approach introduced in Papikyan et al (2023), the credibility index follows a hybrid approach to measuring central bank credibility by combining two key indicators: deviations of non-traded sticky price inflation from its target range and the extent of excessive dollarization in the financial system.

As inflation expectations move toward the dark corners—either drifting upward toward high inflation or downward toward a low-inflation regime—the probability of entering these regimes increases correspondingly. If inflation expectations align with a high-inflation environment, the probability of being in the high-inflation regime approaches 100 percent. Conversely, if expectations fall toward very low or negative inflation levels, the probability of entering a low-inflation regime rises to 100 percent. We adopt this approach to illustrate how shifting expectations can reinforce transitions in two different inflation regimes, highlighting the role of monetary policy credibility in preventing drift toward extreme cases that policymakers would most regret.

The parameters κ in the model can be interpreted as capturing the tolerance toward inflationary versus deflationary environments. A higher value of κ implies that expectations are more responsive to inflation overshooting the target, which is associated with a lower tolerance for high inflation regimes and a correspondingly stronger policy reaction to inflationary pressures. This approach is intended to analytically reflect policymakers' actual risk appetite—specifically, which types of dark corners (high inflation regime or low inflation regime) policymakers would most seek to avoid in making their least-regrets decision. While in principle Board members might aim for a symmetric approach to inflation and disinflation risks, in practice, each Board member has a different risk appetite and a different assessment of what types of “dark corner” scenarios they would most regret if they

materialized.⁶⁸ In essence, this analytical formulation perfectly illustrates how to understand what “risk” means under the prudent risk management approach. Risks refer to those scenarios, which, if mismanaged, can result in policy errors that drag the economy into dark corners: the high and low inflationary regime described above. Each Board member makes a policy decision that seeks to manage risks defined in this way; the relative weight he or she places on how much they would regret each type of outcome materializing (analytically represented by κ) is at the core of how each policymaker makes their risk management decision.

FIGURE 5.6
Illustrative Representation of Inflationary Regimes



Source: Asoyan (2026)

Output Gap

The output gap measures the deviation (in percentage points) of actual output from its estimated trend or potential level. A positive value

68 Although the model allows adjustments to κ to reflect such differences, it is not the role of staff to assign these values based on judgment. Staff should remain neutral, as the responsibility for setting policy preferences appropriately rests with the Board, whose individual perspectives and risk assessments are best suited to guide decisions under uncertainty.

indicates that output is above potential, while a negative value implies economic slack. The output gap equation presented here is a function of its past and future values, lagged reactions to the long-term real effective interest rate gap, real effective exchange rate gap, and the world output gap:

$$\hat{Y}_t = \lambda_{ld}\hat{Y}_{t+1} + \lambda_{lag}\hat{Y}_{t-1} - \lambda_{LR}\widehat{LR}^{Eff} + \lambda_z\hat{Z}_t + \lambda_Y^w\hat{Y}_t^W + EPS_t^Y + \varepsilon_t^Y \quad (6)$$

Dollarization and Effective Rates

Small open emerging economies are highly vulnerable to external shocks, a problem intensified by dollarization, which undermines monetary policy autonomy. Real dollarization (currency substitution) and financial dollarization (foreign currency-denominated assets and liabilities) both weaken policy transmission by heightening exchange rate pass-through and volatility. Liability dollarization further induces a “fear of floating,” as exchange rate movements can destabilize private balance sheets. Consequently, the effective interest rate influencing aggregate demand becomes a weighted mix of domestic and foreign rates, reflecting the hybrid financial conditions of dollarized economies.

Building on Musa et al. (2024), which identifies two primary channels through which high dollarization constrains monetary policy (limiting central bank ability to influence aggregate demand via adjustments in the policy stance and through valuation effects stemming from foreign currency denomination of public debt), we introduce a third channel—the country risk premium—as an additional source of macro-financial instability and a reinforcing factor behind persistent dollarization. In addition, we highlight a fourth channel, persistent inflation differentials, which reflects how high domestic inflation relative to that of anchor economies exacerbates the demand for foreign currency as a store of value. Taken together, we model the effective interest rate as a weighted average of the domestic policy rate and external financial spillovers, capturing the hybrid financial environment in which highly dollarized economies operate.

Effective Interest Rate

$$I_t^{Eff} = (1 - \sigma_t)I_t + \sigma_t(I_t^{US} + (\Delta \bar{Z}_t^{US} + \Pi_t^* - \Pi_t^{*US} + PREM_t)) \quad (7)$$

Real Effective Interest Rate

$$R_t^{Eff} = I_t^{Eff} - \Pi_t^{EXP} \quad (8)$$

Long-Run Effective Interest Rate

$$LR_t^{Eff} = \lambda_1 R_t^{Eff,1} + \lambda_2 R_t^{Eff,2} + \lambda_4 R_t^{Eff,4} + \lambda_{12} R_t^{Eff,12} + \lambda_{20} R_t^{Eff,20} \quad (9)$$

Exchange Rates and UIP

The Uncovered Interest Parity (UIP) condition states that interest rate differentials between countries should equal expected exchange rate changes, ensuring equalized returns across assets once currency movements are considered. In practice, however, UIP often fails to hold, especially in the short run. Exchange rates are driven by a range of factors beyond interest rate differentials, including investor behavior, market expectations, and global risk sentiment. To address this, modern macroeconomics uses a risk-adjusted UIP that adds a country- and liquidity-specific premium, capturing the additional return investors demand for holding riskier domestic assets. In the model, the nominal exchange rate is determined through a modified UIP equation. This specification includes a weighted average of short-term nominal interest rates and long-term equilibrium nominal interest rates (comprising the long-run real interest rate and the inflation target) for both domestic and foreign economies. ε captures the noise in the data and distortions in the markets. The parameter ρ captures the degree of financial market development and central bank exchange rate management. A higher ρ indicates greater responsiveness of the exchange rate to short-term interest rates, typical of developed and liberalized financial systems. Conversely, a lower ρ implies a greater role for long-term fundamentals and more active exchange rate management by the monetary authority. In the case of developed financial markets and a freely floating exchange rate, ρ equals 1 and we recover the standard risk-adjusted UIP equation.

Risk-Adjusted UIP

$$\rho \cdot RS_t + (1 - \rho)[\overline{RR}_t + \Pi_t^*] = \rho \cdot RS_t^{US} + (1 - \rho)[\overline{RR}_t^{US} + \Pi_t^{*US}] + 4(S_t^{EXP} - S_t^{AMD/USD}) + PREM_t + fxPREM_t + \varepsilon_t^S \quad (10)$$

Monetary Policy

We introduce a monetary policy reaction function similar to that of Berg, Karam, and Laxton (2006):

$$RS_t = \lambda_{RSlag} RS_{t-1} + (1 - \lambda_{RSlag}) \cdot [\overline{RR}_t + \Pi_t^{EXP} + \lambda_{RS\pi}(\Pi_{t+4}^{CPI} - \Pi_t^*) + \lambda_{RSy} \hat{Y}_t] + \varepsilon_t^{RS} \quad (11)$$

As the CBA enters the FPAS Mark II framework era, it becomes essential to conduct monetary policy in a risk-averse manner, guided by the principle of least regrets. In this context, the most appropriate policy response to prevent the economy from falling into a bad monetary equilibrium is to adopt a quadratic loss function.⁶⁹ Conventional linear reaction rules become inadequate under conditions of heightened uncertainty. By contrast, a quadratic loss function offers a more effective risk-management strategy, particularly as the economy approaches the “dark corners” where nonlinearities and credibility risks intensify. This approach implies an increasingly forceful policy response as deviations from inflation and output targets become larger, thereby helping to stabilize expectations and maintain macroeconomic stability. In the light of this we adopt an option for monetary policy, represented by the following loss function:

$$Loss = \sum_{j=0}^{\infty} \lambda^j [\omega_{\pi}(\Pi_t^{CPI} - \Pi_t^*)^2 + \omega_y \hat{Y}_t^2 + \omega_{rs}(RS_t - RS_{t-1})^2] \quad (12)$$

Monetary policy aims to minimize this loss function with respect to all the equations and constraints of the economy. The standard quadratic loss function assumes symmetric preferences, meaning that deviations above and below the inflation target or potential output are treated equally. In this setup, an inflation overshoot is penalized just as much

⁶⁹ Refer to Adrian, Laxton, Obstfeld (2018), “Advancing Frontiers of Monetary Policy.

as an undershoot, and both positive and negative output gaps carry the same weight. However, in practice, central banks often exhibit asymmetric preferences. For instance, policymakers may be more concerned about inflation falling below target than temporarily exceeding it (the case of Euro Area), or, in the case of emerging market economies including Armenia, more concerned about the consequences of allowing excessive overheating that can lead to a de-anchoring of inflation expectations and a loss in credibility.

QPM Model

The Quarterly Projection Model (QPM) has served as the traditional workhorse model for many FPAS Mark I inflation-targeting central banks. While the ENDOCRED model serves as the main workhorse model for the CBA, the QPM still has a complementary role to play within the broader analytical toolkit. Specifically, as a linear model, the QPM can be especially useful for filtering history, as well as for providing a consistent manner for assessing and discussing unobservable variables. These unobservables, including the neutral rate, the real effective exchange rate gap, and the output gap, are essential for assessing the cyclical position of the economy as a starting point for analysis and policy discussions. Additionally, the QPM provides a useful tool for running Kalman filters of historical data, which then serve as a data input into the ENDOCRED model.⁷⁰

GPM Model

The Global Projection Model (GPM) continues to provide a useful frame of reference for analyzing the external sector, and remains an important part of the analytical toolkit. GPM is a three-country model, which analyzes Armenia's three key trading partner economies: the US, Euro Area, and Russia. Additionally, it covers commodities that are highly relevant

⁷⁰ While the QPM model has not been published, refer to Mkrtchyan and Stepanyan (2006) as well as Mkrtchyan, Dabla-Norris and Stepanyan (2009) for a discussion of DSGE models tuned to Armenia.

for Armenia (copper, of which Armenia exports meaningful shares; food, with imported food comprising roughly 20% of the CPI basket; and oil, given its broader significance within the global economy (Armenia is an oil importer)).⁷¹

Analytical Dashboards to Support Current Analysis⁷²

Current economic analysis lies at the core of the work of the monetary policy department staff. It takes place on a continuous basis, presented weekly to the Board in weekly analytical briefings, covering all policy-relevant topics in the global and domestic economies. To support greater efficiency and analytical rigor, various technical tools have been developed, chief of which are analytical dashboards. These analytical dashboards cover a variety of economic topics, from the domestic labor market, to inflation, to disaggregation of macroeconomic projections into production and expenditure subcomponents, and so on. These analytical dashboards provide a centralized framework for automatically aggregating relevant datasets from a centralized data warehouse and transforming the raw data. Within each dashboard, the data is transformed into relevant analytical variables (e.g. in the labor market dashboard, various indicators such as dis-aggregations of wage growth across several cross-sections, calculations of unit labor costs, labor supply dynamics, and so on, are automatically calculated in the dashboard). At the same time, the automation of data collection and its collection within a unified dashboard makes the task of conducting unique analyses much simpler and less time-consuming. The chief benefits of the analytical dashboards include the following:

- 1. Making data analysis more efficient, productive, and less time-consuming:** because the dashboards automatically draw raw data from a centralized data repository and transform it into analytically

⁷¹ The GPM model is developed in line with the logic and structure of Laxton et al (2008).

⁷² The editors thank Harutyun Sargsyan and Hayk Karapetyan for their work in developing the analytical dashboards and their contributions to this section.

relevant variables, this virtually eliminates the time and cost associated with manually collecting many frequently-accessed data points. It also simplifies the task of data analysis, whether for more “standard” exercises (e.g. calculating unit labor costs, understanding top contributors to inflation, and so on) or for ad-hoc and unique analysis.

2. **Streamlines knowledge transfer and rotation between teams:** when teams rotate each quarter, one of the main challenges is ensuring that knowledge and analysis are seamlessly transferred between teams, and that the new team does not have to reinvent the wheel and start from scratch. The analytical dashboards, by providing a systematic approach to data collection and analysis, essentially eliminate this problem. New teams can pick right where the prior team left off, ensuring greater continuity between teams in terms of the analytical frameworks and discussion points around which key issues are analyzed.
3. **Simplifies certain standard processes:** for example, one of the most time-consuming tasks for the team leading the quarterly policymaking cycle is preparing disaggregations of GDP growth (which come from the main ENDOCRED model) into its various expenditure sub-components to provide more detailed macroeconomic stories from the demand and supply side. The analytical dashboard designed for this purpose significantly simplifies this process and saves significant time and resources; similar dashboards have been set up for other standardized processes that were previously highly time- and labor-intensive.

| Human Capital Framework⁷³

Introduction

“I’d rather have Bob Solow than an econometric model, but I’d rather have Bob Solow with an econometric model than without one.”

–Paul Samuelson via Stan Fischer

With the development of new approaches to monetary policy decision-making in FPAS Mark II, a unique opportunity emerges to rethink not only how monetary policymaking is conducted and communicated, but also, what role human capital ought to play in this revitalized system. In developing teams that are responsible for carrying out world-class monetary policy modeling, research, and decision-making support under the Forecasting and Policy Analysis System (FPAS) Mark II, the primary challenge lies in developing organizational structures that support, rather than hinder, economists’ productivity, collaboration, and development. The typical institutional and bureaucratic barriers inherent to many central banks and MPDs can have dangerous consequences, and often, they do more to circumscribe individuals’ growth than to support efficiency or productivity. The introduction of FPAS Mark II provides the chance to fundamentally rethink how monetary policy departments are organized; how staff are trained; how teams are structured; what type of culture is created; what values are cultivated and rewarded, and what undesirable traits are not tolerated; and what are the final, positive implications on work-life balance. In addition, it is worth mentioning that the development of the human capital framework under Mark II is inspired by large evidence about some of the issues faced by FPAS Mark I central banks—as well as leading private sector institu-

⁷³ We thank our colleagues from the Human Capital department of the CBA, especially Ani Kirakosyan and Anush Stepanyan, for their invaluable contributions to the development of the human capital framework, particularly to the APMS and recruitment strategies, and their contributions to this section.

tions globally—with respect to the productivity of individual experts and the creation of collaborative environments for teamwork.

The development of human capital is a fundamental priority of the CBA. Under the risk management approach, the main role of the staff is to prepare professional economic analysis that provides a comprehensive view of the macro environment and possible parallel scenarios. Under this approach, critical thinking and synthesizing economic developments, processes, and behaviors are among the most important professional characteristics of a team member. Achieving this type of team and professional culture requires having in place a systematic vision and framework for developing human capital in the monetary policy department.

Taken a step further, the proposed human capital framework is built on the assumption that there are, in fact, practical and real ways to prioritize and support the near- and long-term growth and wellbeing of staff in the monetary policy department (MPD). Developing institutions and policymaking frameworks where human capital is truly at the forefront is admittedly not an easy task. However, the opportunity costs of not doing so—of neglecting human capital and retaining unproductive hierarchies and bureaucratic approaches—are far greater in the long-term than the resources and effort required to make this change. The vision for having a human-capital-first organizational approach is to develop a truly world-class organizational culture among the staff: high and rapidly-growing productivity; efficient processes and resource-allocation that minimize bureaucratic hierarchies; a collegiate culture of collaboration that incentivizes staff to learn and grow; greater dynamism and flexibility in how teams are staffed and how staff allocate their time; among others. Perhaps most importantly, all of this seeks to minimize the stress and inefficiencies associated with most MPDs, resulting in better work-life balance and supporting happier, healthier, and more motivated team members.

Existing Human Capital Problems at Most Central Banks: Excessive Hierarchy and Rigidity

All teams and institutions require organizational structure. Whether that structure be positive—supporting staff to carry out their work more efficiently and productively, and incentivizing them to consistently grow and develop—or whether it be negative—creating inefficient bureaucracy and unnecessary hierarchies that stifle long-term growth, creativity, and learning—is not predetermined. Unfortunately, the vast majority of MPDs in central banks around the world (and, indeed, most large public- and private-sector organizations), adopt the latter approach.

These inefficient and hierarchical organizational structures can be extremely problematic, for several reasons. First, excessive hierarchy and rigid divisions between teams run the risk of cordoning people into silos, where individuals become extremely specialized in narrow tasks but have little knowledge of other relevant fields. In this context, individuals only have incentives to grow in one narrow arena, but even then, they may hit growth ceilings, and could instead adopt a “good enough” approach to getting tasks done. The end result is often a department with groups of “task doers” rather than well-rounded economists who are incentivized to become exceptional. Worse still, when such specialized “task doers” leave the central bank, their roles become difficult and costly to replace. Second, such rigidity discourages collaboration and knowledge-sharing across teams. Not only are there few incentives for this type of collaboration, but even when it does take place, it often occurs in excessively formal ways. For example, a division head reaches out to another and asks for support or knowledge-sharing from the latter’s team, who then determines if his or her staff has enough time to devote to helping another team, limiting opportunities for natural collaboration. Similarly, cross-department interaction often requires formal working groups created by management for a narrowly-defined set of tasks, which limits the opportunities for collaboration to a small scope and restricts the flexibility that is needed to think and perform outside-the-box. Such an approach hardly qualifies as learning, which needs to occur organically and dynamically to have maximum effect.

Third, such rigidities present challenges for efficient resource allocation that maximizes each person's potential contribution. As team members enter specialized silos, they may become highly adept at fulfilling that specific role, but this may be different from their actual interests or may significantly underutilize their potential. It may also disincentivize team members, who end up having to perform the same tasks many years on end without seeing a realistic path for development or career growth. The result is that individuals, teams, and the central bank at large can suffer from low morale, inefficiency, and low productivity—problems that can be largely avoided with a better organizational approach to human capital.

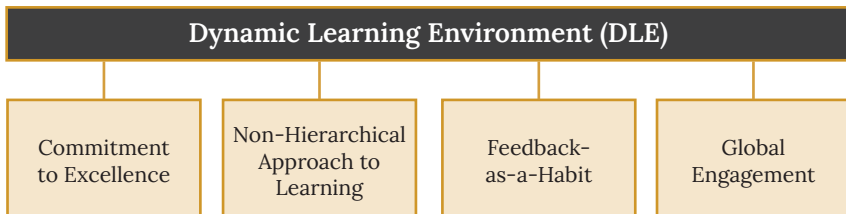
Training and Development: Dynamic Learning Environment

Solving these problems requires organizational as well as cultural changes. Under FPAS Mark II, we attempt to address these issues by developing the type of organizational culture that fosters continuous learning and development, specifically in the monetary policy department but beyond as well. We characterize this as a Dynamic Learning Environment (DLE). DLE is defined as an intensive, rigorous, and highly collaborative environment that seeks to develop exceptional thinkers and macroeconomists. The idea is to shift away from overly hierarchical and bureaucratic models of learning (through formal lectures or courses) and towards a collaborative system where economists immerse themselves in thinking critically, developing and utilizing "learning-as-you-go" skills, learning from peers, sharing knowledge, and giving and receiving constructive feedback as a habit.

The foundational pillars of the human capital development framework under FPAS Mark II include the following:

FIGURE 5.7

Pillars of the Dynamic Learning Environment



Commitment to Excellence

Creating a dynamic learning environment requires members of the team to make a commitment to excellence. In other words, team members would need to have a strong innate desire to become and be among the best macroeconomists in the world and be willing to put in the resources and effort necessary to do so. As such, team members would need to possess the following “soft” characteristics that are defining features of exceptional professionals, not only in macroeconomics, but in virtually every field, from the business world to athletics:

- Innate drive and motivation
- Internal locus of control: ask “what can I do better?” not “why am I so unlucky?”
- High sense of personal responsibility and accountability, with little tolerance for excuses
- Team player who invests in those around them
- Willingness to make mistakes and fail.

These characteristics represent essential features of all team members who join the MPD at the CBA and are the foundation that allows them

to truly benefit from the features of a Dynamic Learning Environment to grow and develop at lightning speeds. These traits are non-negotiable. If individuals who lack these essential characteristics are allowed to be part of the team, not only would they be unable to achieve the high degrees of productivity and quick learning required in a DLE, but also, and perhaps far worse, would diminish the overall culture of collegiality, enthusiasm, and continuous development. This undesirable culture would infiltrate into the rest of the team, with the potential to inhibit the growth and attitudes of even the best performers.

Non-Hierarchical Approaches to Learning

In order to develop world-class teams of macroeconomists quickly and efficiently, it is necessary to eschew overly rigid hierarchical models of learning, where strict student-teacher or boss-employee dynamics dominate. Rather, we emphasize the importance of non-hierarchical approaches to learning that leverage the individual strengths of team members to *both learn and teach*. Through this approach, knowledge and skills can be shared organically, dynamically, and informally. Such an approach also helps avoid the classic Type 1 and Type 2 errors intrinsic to most institutional training models. Type 1 errors are those where the staff member relies completely on the institution to provide them with all the necessary knowledge and skills for the job, without seeing the need (or incentive) to take the initiative and develop skills of their own volition. Type 2 errors refer to the case where the institution relies on the assumption that the staff members already possess, or will independently gain, the necessary fundamental knowledge. In this case, the institution only provides some basic, practical skills necessary to perform the job. As a result, down the road, staff is armored only with practical skills and ends up failing in fundamental issues. Therefore, our human capital development approach, combined with specific recruitment mechanisms (presented below) allows us to mitigate both types of risks.

To facilitate this process, the following organizational elements are recommended:

Training: Staff are provided with training materials and services on specific topics that are interesting to the staff and relevant for the MPD. In line with the non-hierarchical learning style that we emphasize, staff are given a wide array of resources that they can capitalize on, from structured to informal trainings to opportunities to take online or in-person courses. But most importantly, staff are given the freedom to develop their own personalized curriculum, based on their and their coaches' assessments of the types of skill and knowledge gaps they most need to fill to achieve their specific development objectives. In support of this, the training system also includes two key initiatives: first, an on-boarding platform for new staff and Board members, which covers essential topics regarding both the framework and the design of monetary and macroeconomic policy (through video, written, and other types of materials). Second, an apprenticeship program, known as the "Global Forecasting School (GFS)," which is a collaborative initiative of the CBA and the Better Policy Project. It serves as a real-life analytical laboratory to train MPD staff about practical policy designing and policy discussion skills under expert guidance. This allows junior members of the staff to have continuous exposure to many of the most pressing global and domestic economic issues for quick learning and development.

Coaching: In addition to a formal mentorship system (see the point below), staff should be continuously coached by more senior staff, managers, Board members, and leadership. This would include both project-based, task-specific coaching as well as on-the-fly coaching that arises informally.

Collaboration: As individual staff members and teams are trained and coached on specific topics, there must be a culture of continuous knowledge-sharing and teaching among peers. Amidst this culture, the process of generating work output—in the form of the policymaking round analytics, research papers, presentations, and so on—would become significantly more productive and seamless, as all of the necessary skills, knowledge, and ingredients for successful output among the team would be in place.

Mentorship: To facilitate the process of coaching and knowledge-sharing in a way that is formally defined while also being an organic and natural process, a buddy system should be implemented. More junior members of the team should be paired with more experienced staff, who could serve as a readily available resource for learning new skills, answering key questions, and developing best practices. At the same time, we emphasize that the buddy would not simply share technical expertise, but also, and more importantly, would provide career guidance and impart wisdom on how to manage difficult situations, progress in their career, cultivate relationships, and so on. Staff would be paired with one another depending on their interests, skill levels, and so on, but there could also be opportunities to pair staff across teams in order to encourage even greater collaboration. Moreover, senior leadership from outside the MPD could also participate in the buddy system, coaching the most experienced staff on how to develop the leadership and management skills needed to lead departments and even the bank at large.

Feedback-as-a-Habit

An important element of the Dynamic Learning Environment is creating a culture of constant feedback that is given and received by habit. In most institutions, the process by which feedback is given is highly artificial and forced, occurring only once or twice a year during performance reviews. As a result, the feedback that is given tends to be superficial at best, failing to reflect the true scope of a team member's contributions, growth areas, and so on. This type of feedback serves little value other than checking a box—it does not give the team member tangible insight into what they are doing well and where they need to improve. Moreover, for feedback to serve as a helpful tool, it needs to be provided regularly and in real-time, rather than several months apart. In this context, it is not difficult to understand why employees in most institutions tend to view the notion of feedback with skepticism or aversion.

The Dynamic Learning Environment seeks to change this understanding of feedback-sharing as a rigid and artificial process. Instead, it calls for creating a *culture* of dynamic feedback-sharing, where asking for and

giving feedback—both constructive and positive—is a regular aspect of day-to-day work. To facilitate the emergence of this process, a few platforms, including weekly analytical briefings, weekly development seminars, and so on, where production and development team members give and receive feedback on the week’s performance and their presentations/materials. This is not a supervision or performance assessment system, but rather, a way for employees to understand in real-time how their performance has been, receive positive reinforcement, and most importantly, understand what their most pressing areas of growth are. Through this approach, team members would have the incentives to prioritize their personal growth and development at all times and not delegate this important question to the “back burner,” where it is only thought about during annual performance reviews. This would also assist in creating a culture of feedback-sharing, with the hope and expectation being that team members would, over time, solicit and provide feedback in informal settings as well. The key value needed for this feedback culture to take hold is respect towards the ideas and contributions from teammates and colleagues. At the same time, respect plays a significant role in creating an open feedback-sharing environment, where each member of the team takes responsibility to support the growth of peers through constructive and positive feedback, while remaining open and respectful to others’ comments and feedback. In this sense, team members should treat the act of giving feedback with a high degree of responsibility, where this feedback-sharing is their contribution to their colleague’s development.

Global Engagement

Good monetary policymakers and macroeconomists, of course, maintain global perspectives and always seek to engage with the best and freshest thinkers, ideas, and experience around the world. For senior leadership at central banks, maintaining such a global mindset is a part of the job, and is relatively easy to accomplish given their network, the events they are expected to participate in, constant traveling, and so on. For more junior staff, however, engaging with global thought leaders can often be a challenge, and as a result, staff run the risk of developing

insular perspectives and ideas about work—both from a technical and administrative point of view—that damage their near- and long-term growth prospects.

For this reason, the DLE emphasizes the need to create environments where junior staff are constantly engaging with thought leaders from around the world, from leading macroeconomic thinkers and policy-makers to more junior colleagues in peer institutions in other countries.⁷⁴ This requires platforms for constant engagement with these individuals, such as through regularly-scheduled seminars and workshops. Moreover, the working environment within the MPD would be expected to include experienced international advisers, professional domestic and international macroeconomists, interns/exchange students from abroad, and so on, all of which would inject the team with fresh global perspectives and avoid an insular approach.

Standards for Macroeconomists in the Monetary Policy Department

Team members must be able to expertly execute work in the following four areas (the formal job description of an MPD team-member is presented in Appendix D):

- **Current Analysis:** Conduct deep, comprehensive, and data-driven analysis of different sectors of the economy (real, external, financial, fiscal, etc.) in relation to their historical developments, current situation, and short-term developments; highlight and describe trending and temporary factors of current developments, revealing and presenting sources for uncertainty about economic developments, proposing and testing hypotheses about economic stories.

⁷⁴ This includes a large number of esteemed professionals who have made important contributions to the team's learning and development. This includes, but is not limited to, John Taylor, Charles Goodhart, Athanasios Orphanides, Charles Evans, Martin Weale, Barry Eichengreen, Maurice Obstfeld, George Evans, Joseph Gagnon, Michael Bordo, Mickey Levy, Patrick Higgins, and many others.

- **Scenario-Building and Policy Analysis:** Construct medium-term macroeconomic scenarios under the “New Keynesian” paradigm and perform coherent policy analysis. Create compelling narratives related to scenarios, including motivation, underlying economics and policy implications.
- **Communication:** Prepare and contribute to the production of high-quality policy and communication documents to a wide variety of audiences, such as policy notes, presentations, monetary policy reports, and other communication documents.
- **Modern Macroeconomics:** Have a profound knowledge of modern macroeconomic (and, to a lesser extent, microeconomic) theory. Carry out theoretical and empirical research on specific topics of interest for monetary policy.

As an important foundation for being able to execute work in the above arenas, team members would be expected to maintain bilingual fluency (in both Armenian and English), possess excellent analytical skills (as a foundation for carrying out empirical analysis), and have at least working knowledge of coding languages (e.g. R/Python, MATLAB/Julia, etc.).

Certification Levels for Macroeconomists

Each team member within the FPAS Mark II MPD would be expected to progress through the six qualification levels that represent tiers of skills, knowledge, and expertise consistent with a path toward a world-class economist possessing international expertise and quality. Team members in the first three levels would need to progress to the next level within a one to one-and-a-half year timeframe, while those in the upper three levels (where the emphasis is on cultivating soft skills, management abilities, and international expertise, which take longer to develop than the skills required of the first levels) would have two to two-and-a-half years to pass to the next level. Those who fail to move up a level within the prescribed timeframe would not be considered sufficiently competitive or qualified to be part of the team and would need to seek out new opportu-

nities (“up or out”). Moreover, this approach means that no team member could stay in the MPD for longer than a maximum of twenty years, assuming the slowest possible progression through the levels (at the fastest scale of progression, teammates would “graduate out” of the MPD within twelve years). This ensures that the pool of talent within the MPD always remains fresh, that new ideas and approaches are always circulating, and that people are not allowed to stagnate.⁷⁵ This also has downstream effects for the country’s broader economy as well, as these extremely well-trained, critical thinking macroeconomists would then be employed by private and public sector organizations around the country (and beyond) (or in other areas at the CBA). This would serve to have large multiplier effects, as not only would these team members bring with them a culture of extremely high productivity and efficiency but also, would expect to create a culture of collaboration and dynamic learning wherever they go.

The seven certification levels for macroeconomists at the CBA MPD and their corresponding responsibilities are described in Appendix D.

Certification Process

The process by which team members’ skills and aptitude in these areas is tested and qualified must be rigorous, transparent, and equitable. In order to establish a level playing field that gives all team members the opportunity to develop these competencies at the earliest possible stages, the CBA has established the Global Forecasting School (GFS), which is an apprenticeship program that serves as a real-life analytical laboratory to train MPD staff in practical policy-designing and policy discussion skills under expert guidance.

The certification process would be highly dynamic, evaluating economists for both their ability to develop knowledge and put skills into

75 Moreover, by the time team members reach Level 3, they have developed the skills and expertise consistent with an international expert, and many would thus be expected to leave or be “head-hunted” starting from this stage. Hence, from an organizational perspective, it is essential to design the production process such that it can be done at the highest defined standards by L0-L2 people. It also requires continuous recruitment in a by-design higher-turnover environment.

practice, and more importantly, their ability to communicate these ideas clearly and coherently across a variety of mediums. Certification materials would take the form of ten writing assignments (in the form of a policy memo), ten presentations (to a professional, expert audience), and ten video recordings (in the form of a well-seasoned teacher's lecture or an interview with an expert economist). For example, in order to achieve certification as a Level 1 macroeconomic policy expert within the CBA MPD, team members would need to compile a portfolio with a total of thirty materials (ten interviews, ten essays, and ten presentations) at a level consistent with the standards expected of a Level 1 macroeconomist, within one to one-and-a-half years. Team members (especially the new members) who proceed through the GFS training courses would concurrently be tested for their progress on the core competencies. At the GFS level the required materials would also be graded or certified by the individual responsible for training new team members at the MPD, who would then provide a recommendation on the basis of these assignments and the team member's overall performance and fit. This recommendation would serve as an important input in the Head of the MPD's decision to certify that individual as entry level macroeconomist (macro-policy expert).

In order to support the processes and principles for human capital development at the CBA outlined in this chapter, certain organizational processes need to be established to ensure they are codified in a lasting and institutional way. To this end, the human capital model is supported by a performance management system that prioritizes performance, development, and career growth over all else. This is designed to incentivize economists to continuously grow and perform at an increasingly high level, and discourage stagnation, since promotions and salaries depend exclusively on a team member's performance. The principles of the performance management system are outlined below.

1. **Performance Assessment Model:** The Human Resources (HR) model at MPD operates on an "up-or-out" system, where Performance Management (PM) evaluates individuals based on their slope for

growth within a defined period. Consequence management aligns with this assessment.

2. **Performance Based on a Job:** PM is tethered to an individual's level and job description. Performance Reviews (PRs) prioritize assessing performance over measuring skills/knowledge, with the latter understood as the individual's responsibility to acquire for achieving desired outcomes (with required quality, standards).
3. **Objective-Based Approach:** PM revolves around annual objectives (Key Performance Indicators - KPIs), meticulously planned to match the economist's level and individual's developmental goals. A collaborative goal-setting process, which involves the team lead and a staff member, ensures alignment of personal development goals with departmental-level objectives. This implies and requires an informal self-assessment alongside formal goal-setting procedures. The performance over the annual goals and KPIs ensures environment for assessment based on a job.
4. **Collegial Evaluation Process:** Evaluation involves at least three evaluators in any of the established stages for risk management with three lines of defense.
5. **Three Lines of Defense:** The PM process at MPD incorporates three lines of defense for effective assessment and respective consequence management:
 - a. **First Line:** Provides a conducive working environment, including relevant Goals, for individuals to showcase performance and receive feedback through mechanisms such as "Production room" and "Weekly Seminars."
 - i. "Production room": Dedicated "space" for the production team, fostering collaborative work on macro-analysis, scenarios and communication materials. Prepared pre-

sentations, draft documents (likely with commented or track-changed versions), and video recordings are stored in personal portfolios. Peer assessment, team lead/supervisor, and Board member feedback contribute to individual's evaluation.

- ii. "Weekly Seminars": Platforms for development teams to present project achievements, inviting comments and feedback from colleagues and external advisors as an underlying mechanism for natural performance assessment.
 - iii. Formal evaluations from a team lead, a peer and an external advisor or a Board member at later stages might involve review of personal portfolios, where the respective materials (incl. video-recordings, papers, documents, presentations) are stored. In addition, for higher level macroeconomists, the requirement for presenting in a research conference, and/or publishing a reviewed paper (according to CBA standards) is an important tool for the performance assessment.
- b. Second Line:** Involves a formal quarterly evaluation process with documentation and scoring based on predefined weights, culminating in a decision made by the Head of MPD.
- i. Almost-random selection of 3 evaluators (the supervisor, 1 peer, 1 Board member/external advisor). All the assessments include the immediate supervisor/team lead, while for Projection coordinators (usually Level 3+) an input from a Board member is essential.
 - ii. Filing formal standardized evaluation forms with score-based check-boxes that require maximum 5-10 minutes to fill in.
 - iii. Finalizing the scores weighted according to the job descriptions (level requirements) (see Table 5.3).

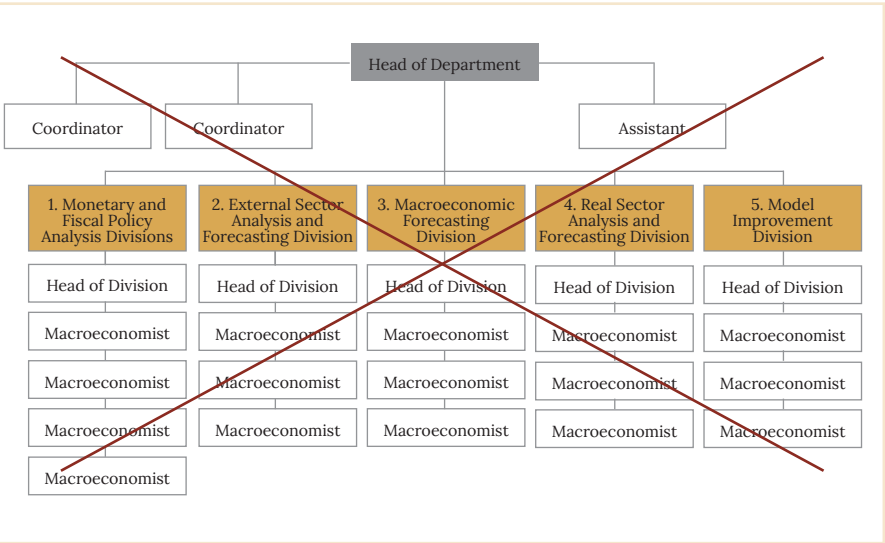
- iv. The final recommendation is accepted, and decision is made by the Head of MPD, relying on a predefined acceptable range of scores and a subjective assessment based on documented first-line “impressions”.
- c. **Third Line:** An escalation mechanism for problematic or uncertain cases, involving formal interviews and potential escalation to higher levels within MPD and CBA systems.
 - v. Includes formal interviews (similar to job interviews) with a committee comprising the team lead/head of MPD, deputy governor, and HR representative.
 - vi. Further escalation follows existing processes at the CBA.
- 6. **Timely Reviews and Assessment:** Quarterly reviews aligned with production cycles, complemented by monthly internal assessments to identify and address problematic cases. The system aligns with CBA’s annual review process of assessments on ethical and cultural dimensions and is complemented by the required evaluation on job performance metrics.
- 7. **System Efficiency and Documentation:** The PM system prioritizes effectiveness through extensive automation and technological platforms. It emphasizes thorough documentation, including individual portfolios (incl. pieces of writing materials (10), “interview-like” Q&A videos (10), presentations (10), etc.) and formal evaluation results as per established PM processes.
- 8. **Formal Feedback:** The feedback is assumed to be an important contribution to the performance of a colleague. Hence, the PMS at the MPD encourages a culture of continuous feedback, where input is sought and given responsibly throughout the process. In fact, any comments/feedback/suggestions in the prepared documents, during the seminars, presentations and discussions act as natural

informal feedback on the performance of a person (as discussed in the previous section). In addition, formal feedback mechanisms facilitate early intervention and mutually agreed-upon improvement plans for flagged cases.

Staff Organizational Structure

As noted previously, monetary policy departments in most central banks suffer from problems that are arguably inherent to large institutions: excessive rigidity and hierarchy. Figure 5.8 presents the previous organizational structure in the CBA monetary policy department *before* the adoption of FPAS Mark II. While there are likely to be some differences across countries, we find that most small- to medium-sized country central banks have similar organizational structures.

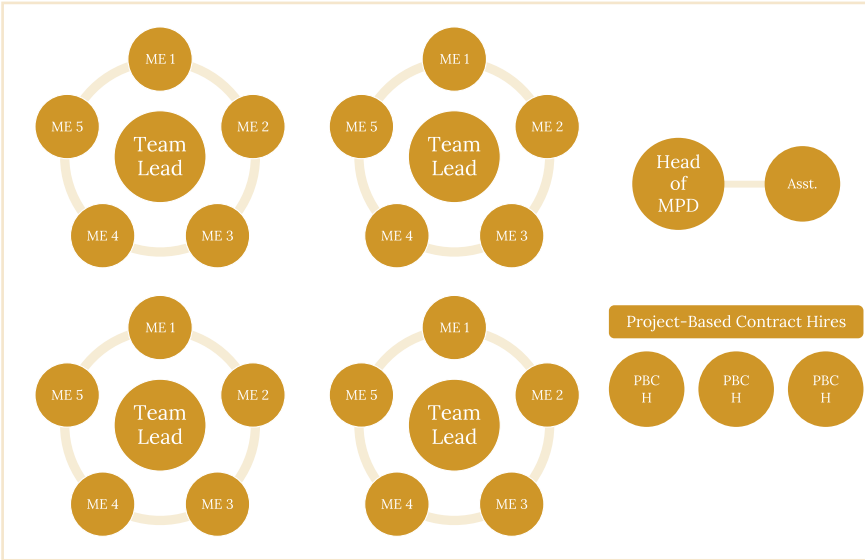
FIGURE 5.8
Previous Monetary Policy Department Organizational Structure under FPAS Mark I



This (relatively standard) organizational structure is rigid and hierarchical. Teams are divided based on specialization (one team handles monetary and fiscal policy, another the external sector, while another works solely on modeling, and so on). Division heads serve as “gatekeepers” for their respective divisions, and manage the flow of resources, knowledge, and skills not just within teams, but across them as well.

In an attempt to address these issues, the new framework proposes an alternative approach to structuring the team and department. This approach seeks to diminish unnecessary hierarchies, rigid divisions between teams, and silos, instead proposing a relatively flat, flexible, and dynamic organizational structure that is better equipped to support, rather than hinder, team members’ growth, learning, and development into world-class macroeconomists. The most notable change is that specialized divisions are replaced by teams of generalist macroeconomists, as described above in the previous section.

FIGURE 5.9
Organizational Structure of the Monetary Policy Department under FPAS Mark II



The department would include four teams of six economists each, headed by a “team lead.” The teams (and the members’ roles) would shuffle on an annual basis, such that staff would have the opportunity to work with different colleagues each year. This is intended to spur greater collaboration and knowledge-sharing among team members. Moreover, the absence of knowledge-specialized teams in favor of generalist teams encourages staff to become better-rounded, rather than being narrow experts in one specific field. Having team leads (who are colleagues) instead of traditional division chiefs (who are superiors) also eliminates unnecessary hierarchy, while still ensuring that there is an appropriate level of structure to ensure that work processes remain effective and manageable.

The head of the Monetary Policy Department (MPD) would be responsible for ensuring that all of the central bank’s resources are used efficiently to support FPAS Mark II. The Head of the MPD coordinates all of the projects and processes in the department, with his or her chief responsibility being to ensure that all operational elements of the department function properly. To this end, the Head of the MPD would be responsible for tasks like coordinating performance reviews, serving as a liaison between the MPD and other departments, coordinating work processes that are separate from the rounds (e.g. ad-hoc policy notes, presentations, etc.), supporting Staff’s development goals when they are not working in rounds, managing resources (human capital, analytical tools, documents, etc.) and so on. In this sense, the Head of the MPD serves more of an administrative and managerial role rather than a traditional economist’s role. Ideally, the role would be occupied by the individual in the MPD that is most adept at managerial and human capital skills, and chooses a career path oriented toward people and process management. This differs from traditional setups; the Head of the MPD in FPAS Mark II would not be the team’s strongest economist or best thinker, since those individuals would be expected to follow a traditional macroeconomist career path and work through the levels and rounds, with the ultimate goal of becoming an international expert in macroeconomics. At the same time, because some of the responsi-

bilities of the Head of the MPD do require intimate knowledge of the global and domestic economy (e.g. leading the quarterly meeting with analysts, providing ad-hoc support to staff during policymaking rounds and research projects, etc.), the Head of the MPD would be expected to possess a minimum level of knowledge consistent with Level 3 and above. To aid in coordinating administrative and operational processes, the Head of MPD could be supported by an assistant, whose responsibility would be handling the day-to-day administrative tasks, including resource management, which form a core part of the head of department function.

Team leads would be advanced macroeconomists, possessing expert mastery of the core competencies outlined below and have achieved towards the upper end (Level 2 and above) of the certification levels. More important than their technical skills, however, is their ability to manage people from the perspective of human capital development. We understand the term manager in its truest sense—as someone who leads people, guides their development, and pushes them to become better—rather than as signifying someone who is their “boss” on a given project, or who is the most skilled economist, modeler, or scenario-builder. In addition to serving as traditional macroeconomists responsible for executing and producing work, the managerial component of the team leads’ time would be spent on the following key areas:

- **Training, Coaching and Collaboration:** Team leads as part of the process coach the staff. They also collaborate or backup staff producing materials. (majority of time)
- **Hands-On Mentorship:** Team leads would be paired with junior team members, and be expected to provide junior staff with hands-on mentorship regarding career development and soft skills, in addition to the more technical coaching noted in the previous bullet.
- **Resource Management:** Help manage resources to maximize the effectiveness of all the MPD teams. (limited amount of time)

- **Feedback:** Provide ongoing feedback and complete APRs. Understand relevant HR rules and ensure job responsibilities are updated. (limited amount of time)

Team leads would need to be highly inspirational, people-oriented, and agreeable, taking the time to cultivate one-on-one relationships with their teammates and create a culture of teamwork and collegiality every day. Understandably, managing, leading and inspiring people and the teams are among the soft skills that are developed over time within the team, likely at the upper end of the certification levels. Importantly, this role is not that of a traditional boss or superior, in the sense that this role is intended to facilitate growth and development among the team and create a team culture, rather than representing necessarily the best performers or smartest economists.

Finally, from an institutional perspective, in certain periods the CBA may need specialized experts to carry out specific projects. To this end, highly-specialized individuals—who could include, for example, professional researchers, statisticians, modelers, programmers—could be brought into the team for discrete projects on a contractual basis for a fixed period of time. This would be particularly useful at times when highly specialized skills are needed that the team does not possess (whether due to a shortage of resources or time), while also contributing to the team through ad-hoc training and research collaboration.

Rotation of Team Member Roles and Responsibilities during a Calendar Year

An important element of the organization of staff during the policy-making round is the team-based structure. During each policymaking round, two of the four MPD teams (each comprising six macroeconomists) would be actively involved in the process. One of the teams would be engaged in “heavy lifting” and actually building out the scenarios, while the second team would play a support role, providing key tactical and technical support to the projection team. During each round,

the Team Lead of the leading team, on a rotational basis, will assume the role of Production (Policy Round) Coordinator, who serves as the thought leader for the team in that round and is responsible for guiding the rest of the team through the day-to-day of the policymaking round and presenting content to the Board. As thought leader during the policymaking round, the Production Coordinator would also receive support from the head of MPD during the round.

Beginning in the kick-off meeting, and leading up to the decision day, two members of the MPD, selected from the team that is leading the policymaking round, would be designated as Coordinators for the Board members. These Coordinators would represent, at a minimum, Level 2 knowledge and skills, and would be highly adept macroeconomists who excel in economics, have strong professional skills, and can manage resources and time highly efficiently.

Following the kick-off meeting, the two coordinators would work closely with the Board members to translate their thoughts, ideas, and concerns—first articulated during the Kick-Off Meeting, but further fleshed out during subsequent formal and informal meetings, brainstorming sessions, and discussions—into one-page submissions. The coordinators would be drafting concurrently in both English and Armenian. The coordinators, working with the Board, would then submit the One-Pagers to the Production Coordinator/Head of MPD and other members of their team leading the Policymaking Round.

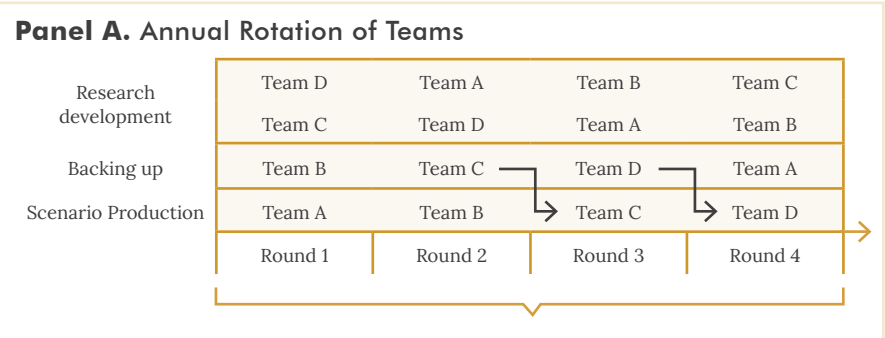
After locking in the Case Scenarios, and after the Policy Decision is made and the MPR is published, the policymaking round is considered complete, and the teams begin to prepare for the next policymaking cycle. In the period before the next policymaking round, the team that served as “back-up” in the prior policymaking rounds assumes a leading role for the next policymaking round. This team takes the responsibility during the weekly macroeconomic monitoring meetings to be prepared with key analysis and stories for the next kick-off meeting to brief decision-makers about the current economic drivers. Thus, each of the four

teams in the MPD has the opportunity to lead the policymaking round once per year, serve as back-up once per year, and work on research and development for the remaining two quarters of the year. This rotation of teams helps to ensure the sustainability of the processes, while at the same time contributing to an increase in productivity, efficiency, collaboration and motivation (see Figure 5.10, Panel A).

During the policymaking round, the remaining two/three MPD teams would be less heavily involved in the process, providing tactical support where necessary but primarily dedicating their time to “preparing for the future.” (see Panel B) This would include continuing to work on trail-blazing, policy-relevant research output; developing and refining the analytical toolkit; conducting current analysis on specific issues; and concentrating on individual personal development goals. At the same time, with this they might generate special analysis (e.g. boxes) that could appear in the MPR of the current policymaking round.

During the remaining two to three quarters, staff are exclusively involved in research and development. By dedicating over half of the year to this purpose, staff are given the resources necessary to enhance their personal development and work on areas of improvement. This is an important foundation for driving continuous upward development among the staff.

FIGURE 5.10
Organization of Teams during a Year



Panel B. Team Roles and Responsibilities during Round 1

Round 1/Key Processes	Team A (Lead)	Team B	Team C	Team D
Building Scenarios (Coordination of the Policymaking Round)	Lead	Back-up		
MPR	Lead	Back-up		
Internal and External Communication	Lead	Back-up		
Special analysis (Boxes in the MPR)		Lead	Lead	Lead
Assist the Board on One-Pagers	Lead	Back-up		
Weekly Analytical Briefing (Preparation for the Policymaking round)	Lead	Back-up		
Other tasks, policy notes, research, model-development, policy analysis, training, coaching		Partly Involved	Lead	Lead
Accountability Report (during the First round of each year)			Lead or Task Force	Lead or Task Force

Recruitment

To support the new human capital model, recruitment of new team members should take place on a continuous basis. The purpose of a continuous, “always open” approach to recruitment is to complement the fact that the human capital framework is set up with a high degree of turnover by design (due to the “up or out” design, which assumes that team members will “graduate” to more advanced positions, whether in other departments in the central bank, in domestic financial markets, in international organizations, or elsewhere). To this end, the job listing for a monetary policy expert in the central bank is always open and accepting applications.

The recruitment process features the following steps:

1. **Submission of Application**, which includes the following materials:
 - a. Resume/CV
 - b. Motivation (cover) letter
 - c. Writing sample (recent working paper, work project, university essay, etc. on any topic. The focus is on the quality of your writing style, so the work you submit does not need to be relevant to economics)
2. **Application Screening**: Once the candidate submits their application, a dedicated member of the CBA's HR team screens their application to determine whether the person's basic attributes, motivation, and potential are broadly aligned with the general standards we expect of team members. The purpose of the screening is to eliminate those types of candidates who would have almost no chance of succeeding in an interview, or whose background or motivation is misaligned (e.g. low grades, poor work experience, wrong reasons for applying, etc.). Applicants who successfully pass this initial screening then move on to the first-round interview.
3. **Round One Interview**: The first interview is intended to be a behavioral, screening interview, where the purpose is to understand the candidate's experience, interests, and motivation, as well as their personality traits and soft skills (e.g. interpersonal skills, ability to work in a team, communication skills, language skills, and so on). To ensure that the process is rigorous, fair, consistent, and transparent, interviewers follow a predefined interview guide, with a bank of predetermined questions. Interviewers are required to fill out a standardized scoring guide, provide a comment justifying each score, then make a final recommendation if that team member should move on to the final round (i.e. Yes, I would feel comfortable hiring this candidate without further examination; Yes, with the need to dig further on specific topic(s); Possibly, with reservations; No, this person is not a good fit for the role or CBA), with justifications. Interviews are conducted by 2-3 members of the MPD team in

conjunction with a representative from the HR team. Applicants who successfully pass the first-round interview move on to round two.

4. **Round Two Interview:** Whereas the first interview is intended to be more behavioral and focus on soft skills, the second-round interview is more technical in nature, focusing on the candidate's critical thinking, economics, and analytical skills. To this end, 24 hours before the interview, candidates are provided with an economics document (e.g. a research paper, a CBA publication, etc.), which they are then asked to present to the interviewers to demonstrate their level of understanding. The interview features a series of technical questions that are intended to assess the candidate's ability to grasp the key concepts and make convincing arguments that demonstrate strong analytical reasoning and critical thinking skills. Importantly, the emphasis is on understanding the candidate's ability to think on their feet, rather than necessarily penalizing them for an absence of highly specialized, technical knowledge. The candidate's response to these and other technical and behavioral questions are graded according to the same rubric as for round one, with the same level of consistency, fairness, and transparency.
5. **Final Round Interview (Optional):** Most of the time, candidates who successfully pass the round two interview will be extended an offer to join the team. In some instances, particularly if the team is "on the fence" about the candidate, a third and final interview featuring more senior staff (e.g. Head of Directorate) may be utilized on an as-needed basis to determine whether the candidate should be extended an offer.

6.

COMMUNICATIONS AND TRANSPARENCY FRAMEWORK⁷⁶

Principles and Objectives of an Effective Communications Framework

Clear and effective monetary policy communications help provide economic agents with clarity about the policy stance, its underlying rationale, and future directions. In this context, the main objective of monetary policy communication is to ensure transparency and comprehension among financial markets and the general public regarding how monetary policy decisions are made, with the ultimate goal of eliminating any uncertainty about the central bank's commitment to its price stability objective. Communications also play an integral role in shaping market expectations and ensuring that inflation expectations remain well-anchored to the medium-term inflation target. Over time, central bank communications have evolved to also prioritize various intermediate objectives, such as generating trust in the central bank's professionalism in forecasting, analyzing, and designing macroeconomic policies. However, during periods of heightened uncertainty, these intermediate objectives may be insufficient to provide adequate assurance about the central bank's commitment to its primary objectives, and may inadvertently generate adverse effects, including crowding out private information, providing false assurances about future economic

⁷⁶ The editors thank Anzhela Papikyan and Lawrence Schembri for their work in developing the communications and transparency framework for the CBA. This section largely derives from the CBA's "Monetary Policy Communications and Transparency Framework" document, published March 29, 2024.

and policy developments, and undermining central bank credibility. Therefore, the CBA places a high degree of emphasis on the core objective of transparently communicating the framework for monetary policy decision-making through an open and honest appraisal of latent risks and uncertainties. This approach aims to eliminate uncertainty regarding the central bank's commitment and serves as a foundation for institutional accountability.

As extensively discussed throughout the book, in fulfillment of its price stability mandate, the CBA follows a risk management approach to monetary policy, where monetary policy decisions are made according to a “least regrets” approach. This approach seeks to most efficiently achieve the price stability objective and avoid undesirable outcomes for the economy and society at large. In practical terms, this risk management approach entails soberly understanding the sources of both risk and uncertainty that policymakers are facing, quantifying and studying them (including assessing associated costs, if possible), and, thus, doing whatever is necessary with policy to adequately deal with the potential implications of these risks and uncertainties to meet the price stability objective. The risk management approach thus explicitly acknowledges the role of uncertainties in the policymaking process, while emphasizing the highest degree of transparency and the importance of a robust and effective communications strategy. In this context, it recognizes the paramount importance of having a comprehensive, targeted monetary policy communications framework that seeks to make monetary policy and the policymaking process understandable, reliable, transparent, and accountable. The greater, systematic emphasis on uncertainties and risks underscores the need to build upon the best global practices for monetary policy communications, while also introducing new and improved approaches.

Monetary Policy Communication Principles

Against this background, the framework for monetary policy communication, accountability, and transparency rests on the following key

principles—clarity of objectives, decision-making transparency and analytical transparency—and also aims to clarify several important principles that underlie the CBA’s decision-making, including scenarios-based forward guidance, policy agility, and credibility.

- **Clarity of Objectives:** The CBA has a constitutional mandate to ensure price and financial stability in Armenia, and it achieves both of these mandates through well-defined operational objectives. With respect to the price stability objective, this includes the numerical point target for inflation; the time horizon over which this target should be reached; what policy tools are used to manage inflation; what trade-offs might exist in bringing inflation to target levels; and so on. Clearly articulating the CBA’s monetary policy and financial stability objectives and goals is the most important and foundational component of effective communications. It allows the public to understand the objectives and purpose of monetary policy and helps clarify and contextualize the decisions made by the central bank, including when it has to make difficult trade-offs. This is the basis for transparency in communications and institutional accountability.
- **Decision-Making Transparency:** At its core, the purpose of monetary policy communications is to clearly convey how the central bank makes a policy decision, and in particular it should include: (1) how the central bank is thinking about current and underlying economic conditions; (2) what it deems to be the most relevant risks and sources of uncertainty; and (3), given this, why the central bank has made a certain decision about how to use its policy instruments, and how this will help the central bank reach its objectives. By conceiving of communications in this manner, the central bank has a duty to structure its communications to answer these questions and provide transparency about how and why the central bank made a certain monetary policy decision.
- **Policy Agility:** Central banks face incredible uncertainty when making monetary policy decisions, uncertainty around current

economic conditions, near-term trends, underlying drivers of economic developments, the essence and significance of potential risks, and much more. In order to demonstrate and maintain its commitment to meeting its objectives, the central bank has a responsibility to both transparently communicate the key uncertainties and sources of risk that threaten its price stability objective, as well as convey how the policy path might shift in response to them materializing. Thus, when economic conditions change in unforeseen ways, or difficult risks materialize, the central bank can have greater agility and flexibility to appropriately adjust its policy stance in a way that does not necessarily contradict its prior messaging or threaten its credibility. This agility is made possible by the fact that forward-looking and systematic discussions around uncertainty, risk, and potential policy response have been an integral part of prior communications, and by the fact that the central bank is not constrained by its prior insistence on a single, narrow narrative about the economic outlook that failed to adequately convey the uncertainty at hand.

- **Scenarios-Based Qualitative and Quantitative Forward Guidance:** Good forward guidance must include a combination of qualitative and quantitative elements. The policy strategy would be presented through the publication of scenario-consistent policy paths. Most importantly, these policy paths would be supported by accompanying *narratives* that highlight the connections between the macroeconomic stability risks present in scenarios, as well as their policy imperatives. Revealing the strategy through quantified and narrated examples, rather than via the algebra of policy reaction or loss functions, provides concreteness and helps to better communicate monetary policy decisions, allowing financial markets to better understand the underlying risks and narratives that guide the central bank's decisions. This is especially relevant for those non-expert agents that are important to both price setting and endorsing the continuation of existing institutional arrangements.

- **Credibility:** Among the most important principles of monetary policy communications is supporting and strengthening central bank credibility. Clear, structured, and effective policy communications help undergird greater trust in the central bank and its commitment to the price stability objective, generating a virtuous cycle that enhances the efficiency of monetary policy and minimizes the underlying social costs of policymaking. High and persistent uncertainty can jeopardize these goals, requiring a systematic monetary policy communications approach to address and discuss these uncertainties. By being more suited to a world characterized by significant uncertainty, a communications approach that drops the focus on a “most likely” future in favor of recognition of an uncertain one might, counter-intuitively perhaps, facilitate the retention of credibility. While the public undoubtedly has a preference for certainty and assurance, prescriptively focusing on a “most likely” future can only provide a false sense of certainty and assurance. Moreover, protected public officials who make unrealistic claims of expertise may serve to threaten the valuable institutional structures created to depoliticize policymaking. At the same time, this emphasis on single, baseline paths for key economic variables and the policy rate risks crowding out private information, and may create the false impression that the central bank is guiding markets.
- **Analytical Transparency:** Communications frameworks also require transparency on the analytics that lie behind the policy discussion that occurs at the policy board and that is shared with the public. This includes timely and frequent publication of both the data used for analysis as well as the models and tools used to analyze them. Here, the use of open-source software may enhance the possibility of higher levels of analytical transparency.

In support of these principles, the Central Bank utilizes a suite of communication tools, which, separately and collectively, serve to communicate the essence of monetary policy to the key target audiences.

Target Audiences for Monetary Policy Communications

The crises of the past two decades—beginning with the Global Financial Crisis and continuing with the Covid-19 pandemic and rising geopolitical tensions in the 2020s—have made explicitly clear that the efficacy of central bank communications requires paying greater attention to a wider set of audiences than experts alone, especially the general public. Even in advanced economies with relatively high economic proficiency, most households are largely unaware of the objectives, methods, or key decision-makers of monetary policy. Moreover, household expectations of inflation and general macroeconomic conditions are frequently inconsistent with the messaging or policy actions of the central bank.⁷⁷ Clearly, non-expert households and firms play a pivotal role in expectations channels, and the central bank thus cannot ignore direct communications to the public. At the same time, the central bank cannot entirely depend on the news media to transmit its messaging to the public; Coibion et al (2019) have shown how monetary policy-relevant messages transmitted through the media can be dampened and lose their efficacy. At the same time, there is a risk that key monetary policy communications can be misinterpreted or misconstrued by the media, whether due to a tendency to over-simplify or in service of a specific political or ideological agenda. These factors underscore the need for the central bank to develop specific, tailored strategies for communicating its monetary policy to both expert and non-expert groups.

Additionally, the CBA holds as a fundamental principle the need to be accountable to the public, whom the Board is appointed to serve. Clear and effective communications are the principal means through which the central bank can achieve transparency in its policymaking, and transparency in its turn is the most important foundation for the CBA and its leadership to be held publicly accountable. Accountability is a

⁷⁷ See, for example, Blinder (2009), Blinder (2018), Carvalho and Nechio (2014), Drager et al (2016), and Coibion et al (2019).

cornerstone of good governance and is a virtuous incentive for the institutional staff and leadership to make the right decisions.

Against this context, the key audiences for monetary policy communications include:

- **General Public:** everyday citizens, including households and business owners, who play an important role in the expectations channel and who directly experience the benefits of price and macroeconomic stability (and the hardships imposed by their absence). Communicating with the general public about a highly complex topic such as monetary policy requires striking a perfect balance between, on the one hand, crafting messages to be easy to understand, and on the other hand, avoiding oversimplification that carelessly oversimplifies the nuance and complexity of monetary policy.
- **Media:** traditional and non-traditional news organizations (print, television, and online) that participate in CBA press conferences and transmit key CBA communications to the public. While media cannot be relied upon as the sole conduit of information to the public, efforts must be made to improve collaboration with the media, including with economic proficiency initiatives, to improve the efficacy of media reporting about monetary policy.
- **Financial Markets:** the traditional target audience for monetary policy communications. Clear and effective communications by the central bank helps market participants form better expectations by nudging their expectations in the appropriate direction and by reducing uncertainty about how policy is likely to behave in the event that any type of risk materializes. Key stakeholders within this group include domestic commercial banks, domestic and foreign asset managers, institutional investors, and so on.
- **Academia/professionals:** researchers who study monetary economics and conduct research and analysis on topical macroeco-

conomic issues are a traditional expert audience. We also emphasize the importance of outreach and communications with academics whose primary purpose is lecturing and teaching, since this can have very positive impacts on long-term economic proficiency in the country.

- **Government/Parliament:** the National Assembly and the Government of the Republic of Armenia at large, various ministries including the Ministry of Finance, are another traditional stakeholder group for monetary policy communications, particularly as it relates to the development of fiscal and other policies that have meaningful interplay with monetary policy.
- **International Community:** these include International Financial Institutions (e.g. International Monetary Fund, the World Bank, Asian Development Bank, etc.) with whom the CBA and Government of Armenia regularly interact for long-term capacity development, funding, and development projects. Additional external stakeholders may include foreign governments of key trading partner countries.

The target audiences for monetary policy communications are diverse and wide-ranging. They differ meaningfully in their level of economic proficiency, interest in the minutiae of monetary economics or technical analytics, preferred mode of receiving information, and preferred language, among many other factors. Nevertheless, as an accountable institution that prioritizes transparent communications as a foundational principle for good governance, the central bank has a duty to craft its communications strategy and tactics in such a way so as to overcome these barriers. In other words, monetary policy must be made clear and accessible to all of these target audiences, and the communications tactics (including the type of medium, messaging, and level of complexity) must be thoughtfully tailored to each audience. These communications vehicles and tactics are explored in the remaining sections.

Key Communications Vehicles

The primary communications vehicles through which the CBA hopes to execute the communications strategy and reach the target audiences include a mix of written, oral, and online communications vehicles, each of which is tailored to be accessible to and understandable by overlapping elements of the key target audiences (see Table 6.1). We reiterate that each mode of communication, regardless of its target audience or density, is designed to serve the six principles of effective policy communications described previously.

TABLE 6.1

Segmentation Strategy for Monetary Policy Communications

Stakeholder	MPR	Press Conference	Technical Briefing	Social Media
Government/Parliament				
Financial Markets				
Media				
Academia				
General Public				
Intl. Community				

Note: The darker the shade, the greater the relevance and/or reach of that communications vehicle for each stakeholder.

Importantly, all CBA Monetary Policy related written communications are published simultaneously in Armenian and English, while the press conference and technical briefing are made available in real time (through live translation on CBA's YouTube channel and other social media accounts) in both Armenian and English.

Monetary Policy Report

The Monetary Policy Report (“MPR”) serves as the chief communications vehicle for the CBA, and is published on a quarterly basis. The MPR intends to present, in some detail, the CBA’s implementation of the policymaking framework described in this book. It begins with an assessment of the first two ingredients essential for economic analysis: where is the economy now, and what are the underlying forces driving the economy. The MPR frames this analysis within a discussion of underlying uncertainties and near-term risks stemming from uncertainty about the measurement and interpretation of current data as well as more medium-term, policy-relevant risks that are rooted in plausible interpretations of current and underlying conditions. Against this background the MPR discusses how the CBA is managing these risks through a framework of least regrets. This includes a taxonomy of different types of scenarios that may be relevant in the current policy round, reflecting a summary of the universe of major issues the Board and Staff of the CBA, as well as external stakeholders, are concerned about and at least one Board member considers it important for his/her own policy deliberations.

Consistent with the overall approach for scenarios-based forward guidance, the MPR presents two illustrative case scenarios with all the scenario-specific complete macroeconomic narratives, assumptions, and projections of key variables, including the endogenous paths of policy variables, representing what the CBA would do with its policy instruments in order to reach its objectives. This type of forward guidance serves as a better tool for financial markets to anticipate how the central bank is likely to design its policy response to different types of risks in the future.

As discussed, illustrative case scenarios include Case A scenario, which represents a path for the policy rate that is above market expectations, while Case B is below. At the same time, the market reference scenario is presented in the MPR to initiate the discussion about the possible risks and scenarios represented with CBA’s illustrative case scenarios in the MPR. Typically, the sections in the MPR that set out the full narra-

tives of illustrative Case A and Case B scenarios provide the motivation of the scenario supported by relevant analytical evidence, explain the underlying economic intuition backed by stylized facts and calibrated assumptions, and conclude with policy discussions supported by respective simulations.

The MPR also contains charts and tables for relevant economic variables. An accompanying Chart Pack is also released with the MPR, providing charts and tables summarizing global and domestic economic developments as well as key projections from the illustrative case scenarios.

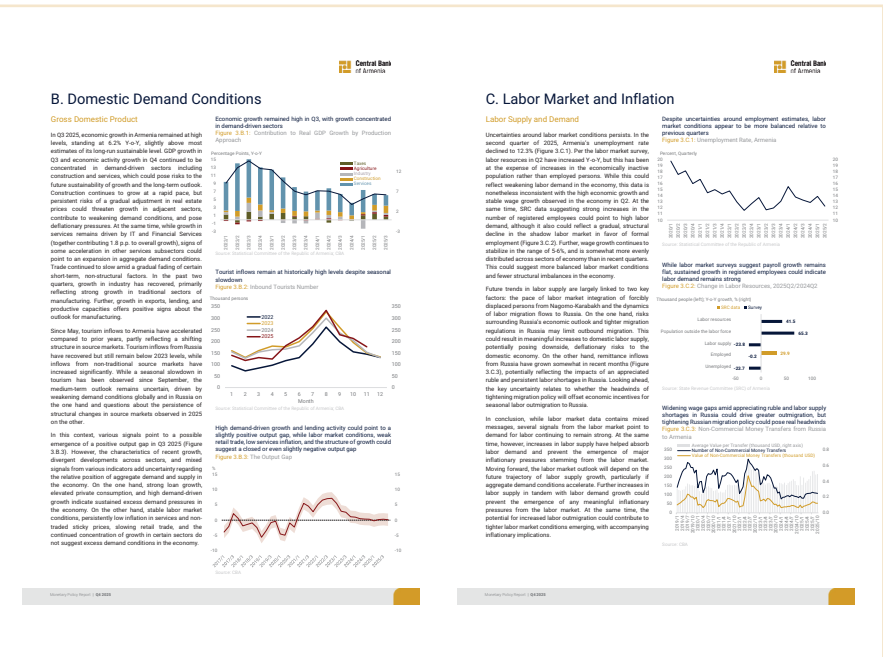
Importantly, the MPR of the CBA is published on the same day as the policy decision is made by the Board of the CBA. This is intended to provide the public with sufficient detail and narratives that describe the framework and analysis that led to the decision in a near-real-time manner.

As a self-contained communications document that communicates the CBA's key monetary policy messaging each quarter, the MPR is intended to be a user-friendly document that covers all relevant issues but remains accessible to technical and non-technical audiences alike. For technical, "expert" readers, the MPR provides robust textual and graphical narrative descriptions of the key policy-relevant macroeconomic issues for Armenia. For less technical audiences, the report is formatted such that a read through the brief executive summary and a scan through the charts and headlines (organized on the right side of each page) would suffice for a high-level summary of the current and underlying economic environment, latent risks and uncertainties, and how the Board arrived at and supports its decision.

Importantly, the MPR seeks to strike the right balance between too much and too little structure. While certain broad categories are fixed and consistent across each MPR (e.g. global economy, domestic demand conditions, domestic labor market, and so on), the content (including narrative and charts) that is presented within each section is "free" to

change in each quarter to reflect the relevant issues at hand. In this way, the MPR can be a dynamic document that comprehensively addresses the policy-relevant economic developments in each quarter and remains flexible to incorporate special topics that are specific to each quarter.

FIGURE 6.1
Sample Monetary Policy Report, Q4 2025



Executive Monetary Policy Statement

The press release, communicating to the public the monetary policy decision made by the Board of the CBA, is known as the Executive Monetary Policy Statement (“EMPS”). The EMPS contains two parts: a statement by the Board of the CBA stating the decision made and explaining the institutional rationale for the decision; and a brief assessment of current and underlying economic conditions prepared by the Staff. The

EMPS is issued during each of the eight decision dates per year. On interim decision dates when the MPR is not published (four of the eight decision dates per year), the EMPS serves as the main written communications device, ensuring continuity in communications around the key macroeconomic issues between MPRs.

Box. Scenario-Consistent Projections

Each MPR includes scenario-specific (for illustrative Case A and Case B scenarios), macro-consistent projections for a number of variables related to the global economy, domestic economy, and policy. These projections are presented in the Monetary Policy Report (in the form of charts and the macro table), as well as the accompanying MPR Chart Pack.

List of Key Projection Variables includes (among others):

- Global Economy
 - Growth (US, EU, RU)
 - Inflation (US, EU, RU)
 - Commodity Prices (Oil, Copper, Food)
- Domestic Economy
 - Inflation (CPI, Non-Traded Sticky Price Inflation)
 - Inflation Expectations
 - GDP (Expenditure)
 - Output Gap
 - Current Account
 - Fiscal Policy
 - Exchange Rate (NEER, REER)
 - Endogenous Interest Rate Path (CBA Refinancing Rate)

Over time, as the CBA continues to invest in the framework and its analytical capabilities, projections may be provided for additional variables, including CBA credibility, flexible prices, and so on.

FIGURE 6.2

Sample Executive Monetary Policy Statement, Q4 2025

A. Executive Monetary Policy Statement

The Board of the CBA decided today to decrease the policy rate to 6.50%.

At its meeting today, the Board of the Central Bank of Armenia decided to decrease the key policy rate (refinancing rate) by 25 basis points, setting it at 6.50%.

Annual CPI inflation decreased in Q4 2025, standing at 3.1% in November. Meanwhile, core inflation edged up, standing at 3.8% YoY in November.

In Q4 2025, risks of a further slowdown in demand conditions globally and in Armenia's key partner economies persist, while inflationary pressures in the US have tapered off. Consumption in the US continues to drive relatively high economic growth and an elevated inflationary environment. However, risks of a correction in asset prices and labor market weakening could negatively impact the medium-term growth outlook. Uncertainty regarding the medium-term implications of US fiscal policy, including the impact of rising public debt on long-term interest rates, persists. At the same time, in Armenia's other trading partner economies, risks of weakening growth and demand conditions persist, even as some uplift has been observed in recent months. Q4 prices, and in recent months, food prices in well, have declined. However, geopolitical uncertainty and tensions in international trade relations remain a key source of global inflation volatility. In this context, considering weakening demand conditions on the one hand and persistent inflationary risks on the other, central banks in major economies would be expected to either maintain or gradually ease their tight monetary stances.

In the fourth quarter of 2025, economic activity in Armenia continued to remain high. Growth continues to be driven by the construction and services sectors as well as the impacts of certain short-term, non-structural growth drivers. External demand for domestic goods and services has remained high in Q3 and Q4. At the same time, uncertainty remains regarding the future outlook for domestic demand. In this context, demand continues to have a neutral impact on inflation, while recent increases in headline and core inflation have been driven by supply-side factors. Wage growth, non-traded sticky price inflation, and inflation expectations continue to stabilize. At the same time, risks for short- and medium-term demand pressures from fiscal policy have weakened.

In the context of current macroeconomic developments, financial markets in Armenia generally expect the Central Bank of Armenia to gradually lower the refinancing rate over the next twelve months to approximately 6.25%.

Amid high uncertainty, the Board discussed, on the one hand, Case A-type scenarios where possible underlying developments could require a higher path for the policy rate relative to current market expectations. This includes scenarios related to risks of a rising US federal rate in the context of fiscal policies, as well as risks of expanding demand conditions. On the other hand, the Board also discussed Case B-type scenarios where potential economic developments imply a more rapid and aggressive downward path for the policy rate than what is currently priced in markets. These scenarios include concerns regarding overall economic activity weakening growth outlook in key trading partner economies, risks of softening domestic demand conditions, as well as a weak demand environment forming and deepening in the economy due to a potential gradual adjustment of real estate prices.

Balancing the aforementioned risks in both directions, the Board finds it appropriate to decrease the policy rate in line with market expectations.

The Board resolutely affirms its commitment to adopting the appropriate policy actions and strategy to ensure the price stability objective of 2% inflation in the medium term.

Approved by the Board of the Central Bank of Armenia
December 10, 2025

Chairman
Martin Guliyev
Deputy Chairman
Hakobbekh Khachatryan

Board Members
Gevorg Nisenzyan
Araik Manukyan
Lavor Sahakyan
Razmik Chaturyan
Armen Khoyan



B. Summary of Economic Conditions

Global Economy

In Q4 2025, the global growth outlook has continued to deteriorate. Following volatility in US GDP growth amid trade policy uncertainty in H1, growth rebounded strongly in Q3 (estimated 3.0% YoY), primarily reflecting growth in consumption, increased investment activity in artificial intelligence. Growth in financial asset prices and wages continue to support consumption among high-income and high net worth households, while slowing wage growth for middle- and low-income sectors as well as rising labor deficiency rates points to slowing demand in the rest of the economy. Considering both the drivers of growth and the structural characteristics of consumption, price pressures in financial assets could have negative impacts on US demand conditions, with global spillover effects.

Amid these conditions, US fiscal policy remains a key source of uncertainty. Given the significant expected expansion of the fiscal deficit and related debt, risks of a potential rise in long-term interest rates have deepened. Such developments could impact not only the future course of the Federal Reserve's monetary policy but also impact the overall interest rate in and capital flows to emerging markets.

Inflation in the US has continued to rise in recent months, standing at 3.2% in September, largely reflecting the gradual transmission of tariff policy onto consumer prices. Although trade policy uncertainty has softened somewhat in recent months, looking ahead, the extent and nature of further impacts of trade policy on inflation would depend on the trajectory of domestic demand conditions. At the same time, while slowing wage growth and payroll could point to softening labor market conditions, relatively stable unemployment and tariff levels are not indicative of a sharp slowdown of aggregate demand conditions. These issues significantly complicate the Federal Reserve's trade-off between maintaining price stability and achieving full employment, a challenge that is further compounded by potential risks of deteriorating central bank independence.

Elsewhere, economic growth has slowed in Q3 to 1.4% YoY, reflecting sustained structural challenges, even as exports have increased QoQ and some easing in global trade policy uncertainty. The inflationary environment continued to stabilize, with headline inflation converging around the target for several consecutive months. Meanwhile, although underlying inflation has moderated, services inflation still remains elevated, while tight labor market conditions exhibit mixed signals of softening. However, the medium- and long-term growth outlook remains uncertain and problematic. On the one hand, structural challenges within the European and trade uncertainty continue to weigh on business sentiment and negatively impact investment and production. On the other hand, emerging fiscal stimulus measures aimed at addressing structural challenges could have positive impacts

on certain production sectors, but the emphasis on increasing defense output could have uneven and inflationary implications.

Uncertainty persists surrounding the trajectory of oil prices. On the one hand, sustained high production, along with weakening global demand, may surface downward price pressures. On the other hand, the potential escalation of geopolitical tensions in key oil-exporting regions of producing countries could drive short-term increases in prices. Similarly, the risk of secondary sanctions against Russia could pose upward pressure through potential supply chain disruptions.

In Q3 2025, Russia's economic growth continued to weaken significantly to 0.6% YoY. At the same time, economic activity edged up in October, particularly in retail trade and services, suggesting some recovery in consumption and demand conditions. Strong credit activity and growth in non-performing loans could point to greater weakening in demand conditions. While various indicators of inflation have slowed somewhat in recent months, they nonetheless remain considerably above target. At the same time, labor market conditions remain exceedingly tight, exerting sustained inflationary pressures on the economy, while the recent tightening of migration policy could deepen labor market pressures. Further, oil price uncertainty could pose risks to food prices while tightening tax policies (especially increases to VAT) pose additional downside risks to consumption and domestic demand. The combination of weakening demand conditions on the one hand and persistently tight labor market conditions and high inflation expectations on the other pose serious challenges to the Central Bank of Russia in managing the inflation-output trade-off.

Domestic Demand Conditions

In Q3 2025, GDP continued to grow at a high rate, standing at 6.2% YoY. Further, economic activity continued to expand at a strong pace, standing at 13.1% in October. Growth in the third and fourth quarters was concentrated in demand-driven sectors including construction and services, which could pose risks to the future sustainability of growth and the long-term outlook. Construction continues to grow at a rapid pace, but persistent risks of a gradual adjustment in real estate prices could threaten growth in adjacent sectors, contribute to weakening demand conditions, and pose deflationary pressures. At the same time, while IT and Financial Services continue to play an important role in high services growth, signs of acceleration in other services subsectors, especially in recent months, could point to a potential expansion in aggregate demand conditions. Since the beginning of the year, trade continued to slow amid a gradual fading of certain short-term, non-structural factors. In the past few quarters, industrial sector growth has slightly recovered, primarily

Press Conference

On each decision day, the Governor of the CBA hosts a press conference for members of the media. The press conference is live-streamed on the CBA's various online platforms (e.g. website, YouTube, Facebook, etc.) and can be freely viewed by the public in real time in Armenian and English (with live translation). The purpose of the Press Conference is for the Governor to communicate the Board's monetary policy decision; provide a clear explanation of the Board's thinking around the key macroeconomic risks, uncertainties, and issues (structured around questions of “where is the economy now? what are the underlying forces? and what is the Board doing with its policy instruments to achieve its objective, in line with this reading of the key issues?”); and offer a platform for journalists to ask questions related to the CBA's monetary policy decision, strategy, risk assessments, and so on. During the press

conference, the Governor solely presents the institutional view of the Board of the CBA, reading the press release, accompanied with a presentation on the underlying economic analysis. The Head of the Monetary Policy Department and the Director of Macroeconomic Directorate also participate in the press conference as support to the Governor on questions related to the technical and analytical materials underlying the policy decision.

The press conference serves as one of the most important means of communicating with the general public. This can occur in several ways. First, thanks to its live-streamed nature (and its availability on the CBA website and online platform afterwards), the press conference allows the Governor to communicate CBA policy and other key policy-relevant issues directly with the public. Second, the press conference allows members of the media to more robustly understand the CBA's policy decision and thinking around the key issues, which supports higher-quality and more extensive reporting around monetary policy decisions.

Technical Briefing with Analysts

On a quarterly basis, the day following the Board's monetary policy decision, a technical briefing is held with analysts and other experts. The technical briefing provides a platform for expert audiences (including financial market participants, commercial bankers, institutional investors, academics, and others) to ask technical questions about the CBA's economic analysis, scenario calibration, modeling, and so on. The Head of the Monetary Policy Department and members of the staff leading the policymaking round lead this meeting. A CBA Board member also participates, solely to respond to questions that relate to matters of policy decision. The technical briefing is held on a quarterly basis following the publication of each MPR, rather than following each decision. Because the key cornerstones of the CBA's external-facing analysis, including the MPR, Taxonomy of Scenarios, illustrative case scenarios, and so on, are published on quarterly basis, a quarterly format for these meetings allows for a richer and more substantive discussion around

the analysis, while the Press Conference and other communications that accompany each decision cover new information on interim decision dates.

This approach allows the central bank to continue to communicate the technical complexities of economic analysis and policy with expert audiences, without sacrificing accessibility to the general public. Because this technical platform is available and open to experts, many of the primary communications tools (e.g. the press conference) can remain more high-level, easily understood, and accessible by the general public. Thus, the central bank does not have to choose between accessibility and complexity in its communications; it can speak in both tones, depending on the audience.

Media Interviews

Following each decision, one (or more) Board member(s), on a rotational basis, might participate in interviews with the media, if the Board considers it important. This would likely take on the form of a televised interview. The purpose of the interview is to elaborate on the key issues presented in the MPR and the press conference. While the content of the interview would in many cases be redundant with the press conference, the purpose of having additional media interviews is to extend the reach of central bank communications, particularly as a far greater share of the general population watches news (whether on television, online, or on social media) than views the CBA's press conferences.

During media interviews, in all discussions around the policy decision itself, the Board member should present the institutional view. In more abstract discussions about specific risks or issues, the Board member may present their personal view, given that clear disclaimers are made. In general, Board members should seek to devote the vast majority (approximately 80%) of their communications to the institutional view, and allot the remaining share to their personal view, providing clear disclaimers when they do present their individual view.

Social Media

Social media can serve as an important means for the CBA to communicate directly with the general public, without the intermediation of media and journalists. At the same time, we recognize that many journalists themselves may consume social media content to support their reporting. Effective social media use (including, for example, Facebook, Instagram, X (formerly Twitter), and LinkedIn) can thus serve two purposes for MP. First, it can help promote economic literacy through the use of educational posts and infographics about the purpose of monetary policy, key elements of the framework, what the inflation target is, how the price stability objective is achieved, and so on. Second, social media can serve as another method for communicating the CBA's monetary policy decisions and what it is thinking about the economy.

Analytical Publications

While not a formal communication vehicle per se, the CBA's analytical publications serve as an important tool for improving transparency around the central bank's datasets, analytics, and modeling tools—in other words, the information the Bank relies on when analyzing the economy. To this end, the CBA publishes the following:

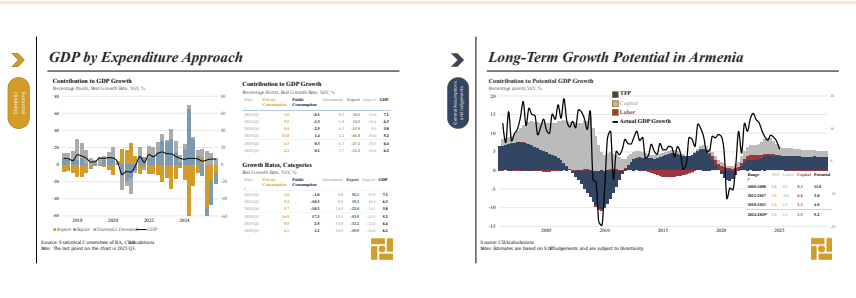
- **Monetary Policy Chart Pack:** Because the MPR follows a more streamlined and narrative-based approach, not all economic variables are presented in the report itself. This is natural—the MPD staff works with hundreds of data series at a time, not all of which are equally relevant for the particular stage of policy or analysis. Rather than making the mistake of “filling the bathtub” in the MPR with the universe of available information⁷⁸, the CBA instead publishes this data (in the form of accessible charts and tables) in the MPR Chart Pack. This document is published concurrently with the MPR. Selected pages from a sample MPR Chart Pack are shown in

⁷⁸ We refer to the term in the context of its usage by Eric Leeper in his seminal “An Inflation Reports Report” (2003). Leeper’s paper was an important inspiration for the streamlined and narrative-based approach of the CBA’s new MPR

Figure 6.3. The Chart Pack follows a consistent format, but may be augmented on an ad-hoc basis to cover special topics that were especially relevant in a given round.

- In addition to the quarterly Monetary Policy Chart Pack, the CBA is planning (since the beginning of 2026) to publish a high-frequency, weekly-updated chart pack that covers global and domestic economic developments. This would represent the first, comprehensive collection of such data in Armenia, making economic analysis by external parties significantly easier and less time consuming.

FIGURE 6.3
Selected Pages from Sample MPR Chart Pack



diences of analysts, commercial bankers, and academics, but also students of economics and aspiring practitioners) to replicate or modify the central bank's analysis in their own risk management exercises. The CBA plans to take this approach a step further than what is considered best practice today by using open-source software (Dynare/Julia), in order to increase the accessibility of the model and analytics.

Other Channels for Public Communications

Finally, in emphasizing the importance of transparency for ensuring good governance and institutional accountability, we note that public accountability should also be ensured through formal means involving well-defined processes with elected officials and the public. To this end, and in line with the Law on the Central Bank of Armenia, the CBA has formal procedures in place, including an annual presentation of the Monetary Policy Report and Monetary Policy Accountability Report to the National Assembly (with the possibility of Q&A and dynamic discussions), to support this principle in practice.

The CBA emphasizes that, while structured and consistent monetary policy communications are critical, having platforms for dynamic dialogue with the public, markets, government, and other stakeholders is equally as important. Several of the vehicles mentioned above, including the Press Conference, Meeting with Analysts, annual presentation to the National Assembly, and others can serve as important platforms for engaging these stakeholders in a fluid and organic way. The success of these platforms in achieving this dynamic dialogue rests on both the CBA's institutional commitment to openness and transparency as foundational principles, as well as the external stakeholders' good-faith commitment to furthering these relationships and supporting the price and financial stability objectives.

| Decision-Making Transparency

As an accountable public sector institution, the CBA places explicit emphasis on maintaining the highest levels of transparency regarding the monetary policy decision-making process. Greater decision-making transparency lies at the foundation of effective policymaking, given the role it plays in minimizing policy uncertainty; helping support and manage better-informed market expectations; ensuring the credibility of the CBA; ensuring the CBA's responsiveness to the people of Armenia and its mandate; and supporting CBA independence. To serve these objectives, transparency about the decision-making process should take place in a timely manner, with very little lag between when the decision is made and when decision-related transparency documents are published.

The key communications document supporting decision-making transparency and accountability is known as the “Transparency Report.” The Transparency Report is published at 18:00 on the same day as the monetary policy decision is made. The key components of decision-making transparency include:

Attributed Minutes of Board Deliberations (Introduced in March 2024)

The CBA publishes minutes of the Board deliberations for each policy decision. These minutes provide a concise summary of the main discussion items by Board members and material presented by the Staff. As an added measure of transparency and accountability, the minutes summarize the key arguments made by members of the Board (attributed to each Board member), allowing the public to understand the scope of deliberations that led to each decision.

Attributed Votes (Introduced in June 2024)

The CBA publishes minutes of the Board deliberations for each policy decision. These minutes provide a concise summary of the main discus-

sion items by Board members and material presented by the Staff. As an added measure of transparency and accountability, the minutes summarize the key arguments made by members of the Board (attributed to each Board member), allowing the public to understand the scope of deliberations that led to each decision.

Vote Explanations (Introduced in September 2024)

When casting their vote, Board members are required to submit a succinct, one paragraph summary of the rationale supporting their proposed decision. These explanatory notes, known as “Vote Explanations,” are published in tandem with the other documents on decision day. Publishing the rationales allows the public to have further insight into the often diverse viewpoints held by the Board and understand the different perspectives that Board members may have about the most pressing issues while highlighting their individual “least regrets” in the decision made. Moreover, given the decision-making model of the CBA Board (majority votes of individual Board members, rather than Governor–decision-maker or Board consensus), the vote explanations serve as an essential tool for enhancing the accountability of individual Board members.

Full Transcripts of the Board Meetings (after 12 years, the first publication is expected in 2036)

Full transcripts of the key monetary policy decision meeting (with named attributions of individual Board members), and all the internal documents including each Board member’s Initial Macroeconomic Risk Assessments, will be published with a 12-year lag.

External Communication Materials Available on Decision Day

Following the highest standards for transparency the CBA is committed to making all the monetary policy communication and decision-making transparency documents available on the same day of the policy decision. The external communications on decision day proceed according

to a specific timeline (see Figure 6.4). In addition, social media posts will accompany each announcement or publication.

FIGURE 6.4
Timeline for External Communications on Decision Day



Annual Calendar for Monetary Policy Decision Dates

The CBA publishes, in November of each year, the calendar for Monetary Policy Decision dates of the following 3-year horizon. The calendar also clarifies when the key communication documents corresponding to each decision (Monetary Policy Report, Transparency Report, Technical Meeting with Analysts, and so on) are to be released.

Blackout Period Preceding Decision

All CBA Staff involved in monetary policy and Board members, should be held to a “blackout period” of 7 days before the decision day, where they refrain from making official policy-related public appearances or discussing policy with the public, including on social media. The purpose of the blackout period is to prevent sharing of potentially privileged information that could result in information asymmetries that could be exploited.

Summary of the Key Elements of the Communications Framework

Written Communications

#	Issue	Approach			
1a	Decision-Making Transparency: Minutes of Final Deliberations	Board minutes, which are published following each decision, should attribute key discussion points to individual Board members. This represents the highest standard for transparency about policy deliberations. Minutes should be published on the day of each decision, beginning with the March 2024 decision.			
1b	Decision-Making Transparency: Voting Record	The voting record of each Board member for each monetary policy decision should be published on the day of each decision, beginning with the June 2024 decision.			
1c	Decision-Making Transparency: Vote Explanations	Board members should provide succinct attributed final submissions stating their attributed vote and explaining their rationale for the vote. Beginning with the September 2024 decision, the final submissions should be published externally alongside the minutes on the day of each decision.			
1d	Bilingual Communications	All written communications on the decision day should be published bilingually, in Armenian and English.			
1e	Written Package to be Released with Each Decision	Document	Owner	MPR Cycle	Non-MPR Cycle
		Executive Monetary Policy Statement	Board & Staff	X	X
		Monetary Policy Report	Staff	X	
		Transparency Report	Board	X	X
1f	Timeline for Communication during Decision Day		MPR Cycle		
		11:00	Decision made		
		12:00	Decision Published with Executive Monetary Policy Statement		
		12:00	MPR Cycle: Monetary Policy Report Published		
		14:00	Press Conference / Conference Presentation		
		18:00	Transparency Report Published		

Verbal Communications

#	Issue	Approach				
2a	Key verbal communication tools	The Board approves the following verbal communications vehicles:				
		Vehicle	Participants	Timeline	MPR Cycle	Non-MPR Cycle
		Press Conference	Governor, Head of MPD	Decision Day	X	X
		Technical Meeting with Analysts	Head of MPD, Staff, One Board Member (Rotation)	Day after Decision	X	
2b	Role of Governor in press conference	Board Member Media Interview	One (or more) Board Member(s) (Rotation)	Within one week after Decision	X	X
		The role of the Governor during the press conference is to serve as spokesperson for the Board, reflecting a single institutional view of the CBA, and refraining from describing their own individual views.				
2c	In public apps., how should Board members balance communicating personal versus institutional views on monetary policy?	Role of the Governor: The Governor should solely present the institutional view in all media appearances, as the public is likely to conflate his personal views with the institutional view, even if it is not necessarily the case.				
		Role of Deputy Governors and Non-Executive Board Members: The rest of the Board should practice the following approach: In all discussions around the policy decision, the Board member should present the institutional view. In more abstract discussions about specific risks or issues, the Board member may present their personal view, given that clear disclaimers are made. In general, Board members should follow the 80/20 principle, devoting the vast majority of their communications (roughly 80%) to the institutional view, and a small portion (20%) to their personal view, and provide clear disclaimers when they present their individual view. This applies to all policy-related media appearances, including posts on social media.				

2d	Blackout period	All CBA MPD Staff and Board members, should be held to a “blackout period” of 7 days before the decision day, where they refrain from making official policy-related public appearances or discussing policy with the public, including on social media. The purpose of the blackout period is to prevent sharing of potentially privileged information that could result in information asymmetries that could be exploited.
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7.

MONETARY POLICY ACCOUNTABILITY FRAMEWORK⁷⁹

Since the introduction of monetary aggregate targeting regimes in the 1990s, and later the adoption of a formal inflation targeting framework in 2006, the CBA has had in place a monetary policy accountability framework, which was largely consistent with principles of policy transparency and accountability under the FPAS Mark I framework. The existing legal framework mandated the central bank to submit a quarterly status report on the “implementation of the monetary policy program” for the preceding year. The status report was intended to serve as a tool for promoting greater central bank accountability, particularly considering the novelty of the inflation targeting regime for a transitioning economy in the Eurasian sphere. Following the simple and standard versions of policy evaluation frameworks under FPAS Mark I⁸⁰, Armenia’s evaluation system followed an approach, where the key objective was to provide an overview of economic conditions during the review period, a description and justification for policy actions, and an assessment of how these policy actions had worked in service of the price stability objective.

The implementation of the new, prudent risk management framework for monetary policy (FPAS Mark II) at the beginning of 2024 has created

⁷⁹ The editors thank Anzhela Papikyan for designing, from the ground-up, the CBA’s novel accountability framework. Her work is summarized in this section. For further reading, see Papikyan, Avagyan, and Avetisyan (2026).

⁸⁰ A comprehensive review of leading policy evaluation frameworks in the world is provided in Papikyan, Avagyan and Avetisyan (2026).

new opportunities to enhance and rethink policy transparency and accountability at the CBA. As part of the effort to increase transparency, the CBA developed and introduced a comprehensive framework for monetary policy communications and transparency (described in the previous chapter), which strives to be consistent with—and in many cases exceed—global standards and best practices for monetary policy transparency.⁸¹

Having in place a robust framework for policy transparency, and driven by the CBA's strategic vision to achieve the highest standards for good governance and policymaking, the CBA has developed a systematic and structured framework for policy accountability, which is designed to meet or exceed global standards for excellence in accountability, as well as reflect the unique characteristics of the CBA's novel risk management framework for policymaking.

The case study analysis of best-in-class accountability frameworks provided in Papikyan et al (2026) makes clear that there is no universal, “one-size-fits-all” approach to accountability frameworks. Moreover, even these best-in-class examples have their own limitations and drawbacks, pointing to both room for further improvement in accountability and certain incompatibilities with the PRMAPS approach.⁸² Certainly, each framework is tailored to suit the specific characteristics of that central bank and country—from its institutional setup and governance model to the structure of its economy and the central bank's policy objectives. Therefore, while robust accountability frameworks are broadly guided by certain common principles, any country-specific accountability framework should reflect the unique needs and challenges of each economy, institutional setup, and overall national context. This is particularly true for the CBA, where the PRMAPS framework differs in important ways from the baseline forecast-focused approaches in place in other central banks.

81 See, for reference, the CBA's “Monetary Policy Communications Framework” (2024).

82 For example, the centerpiece of many FPAS Mark I accountability frameworks is the forecast evaluation, which is rife with its own issues (as discussed in the previous chapter) and is not applicable for a framework that does not rely on baseline scenarios.

Finally, an important “theoretical” distinction should be made in the approach to monetary policy accountability at the CBA relative to existing best practices. Central banks in the world tend to think of accountability as an exercise in evaluating policy. Evaluating policy implies that there exist optimal policy choices (supported by good baseline scenarios) and suboptimal policy choices (caused at least partly by the selection of poor baseline scenarios). Such an approach obfuscates the essence of good policymaking, particularly amid significant uncertainty. When faced with an inherently difficult interplay of risks and tradeoffs, the key task for policymakers—according to the CBA’s prudent risk management framework—is to try to minimize the losses that could stem from these risks materializing, given their own judgments and assessments of the types of risks that, in their view, pose the gravest threat to macroeconomic and price stability. Given this perspective, an evaluation of policy cannot be sufficient to promote accountability. Moreover, it can lead to perceptions that this is a rote, box-ticking exercise, conducted because of legal or bureaucratic requirements. Instead, accountability should be seen as a choice—part of the central bank’s steadfast commitment to good governance and improving public welfare as a socially responsible public sector institution in a democratic society. Accountability therefore requires a proactive stance by the Board that seeks to continuously explain, justify, and take responsibility for the policy actions taken. This can help reinforce the Board’s resolve in taking sufficiently aggressive actions to ensure price stability and maintain public trust in the institution and its mandate.

Against this background and considering this view of accountability as a dynamic process and part of a broader commitment to good governance, the structured framework for policy accountability at the CBA is designed. It draws upon the key building blocks for effective accountability frameworks (institutional setup, evaluating body, frequency, content, and external communications), and adapts them to reflect the specific institutional characteristics of the CBA and the Armenian economic context.

| Institutional Framework

A strong legal basis for monetary policy accountability, while not mandatory, should serve as an important foundation for institutionalizing a culture of accountability, which has a number of benefits. This includes:

- establishing a formal set of procedures, standards, guidelines, methodologies, etc. that help ensure that reports are conducted in a consistent, transparent, and replicable manner, reducing the likelihood of biased or inconsistent evaluations⁸³;
- ensuring that monetary policy accountability is not seen as ad-hoc formality, but rather, part of a dynamic and ongoing process that supports greater policy effectiveness over time; and
- cementing a commitment to accountability as an inviolable component of the central bank's culture and ethos.

The specific legal arrangements underpinning the institutional setup may vary from country to country and are the responsibility of the relevant authorities to decide; the most important takeaway, however, is that there should exist a legal basis for policy accountability to reap the above benefits. The CBA has adopted the following elements as a part of the legal basis for accountability analysis and publication:

- Legal provisioning in the Law of the Central Bank of Armenia, that mandates the CBA to publish a monetary policy evaluation/accountability report in certain frequency (annual) for a particular horizon (past 1-year period)⁸⁴
- Handbook for policy accountability that proscribes the procedures and sets the standards and scope for preparing accountability re-

⁸³ The Guideline for Accountability Reports is provided in Appendix C.

⁸⁴ The current Law requires quarterly reports for the past 12-month horizon.

ports (see Appendix C). This allows us to have a uniform and consistent approach from report to report, make the process fully transparent to external audiences, and make the actual task of preparing these reports easier and readily understandable.

- Codifying the commitment to monetary policy accountability via a formal accountability framework in the CBA Board’s “Statement of Long-Run Monetary Policy Objectives,” which serves as the most important document describing the Board’s commitment to, and interpretation of, its price stability mandate.
- Establishing the policy accountability framework as an inseparable component of the broader policymaking framework (FPAS Mark II).

| Evaluating Body

Monetary policy evaluations are either conducted internally by the central bank’s staff (e.g. Sveriges Riksbank and the Reserve Bank of New Zealand) or delegated to some external body of expert reviewers (as is the case with the Riksbank’s Parliamentary review, the Norges Bank Watch, and the Central Bank of Iceland). The benefits and drawbacks of those approaches depends on a number of country-specific factors, including the ultimate objectives of the evaluation and the availability of resources (whether internal or external), as discussed below:

Objectives of Preparing an Accountability Report

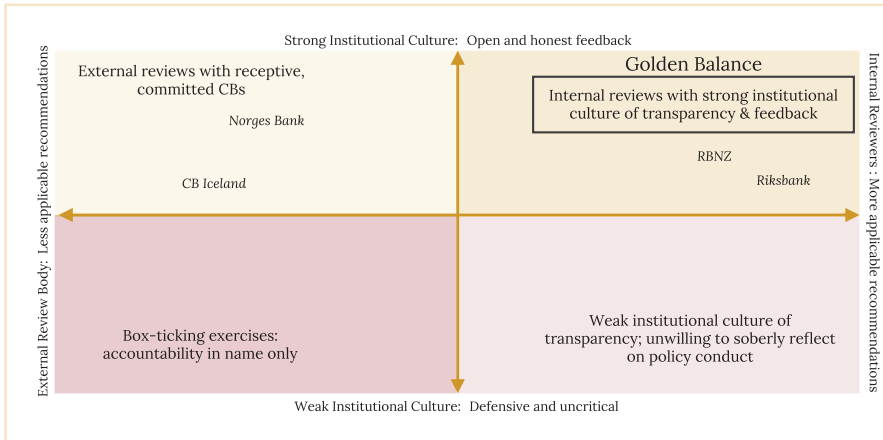
The selection of an evaluating body results in a tradeoff between, on the one hand, the usefulness and applicability of the evaluation (in terms of its ability to profoundly grasp the key policy issues and offer insightful analysis), and on the other hand, the degree to which reviews are truly open and critical of policy actions. Where the central bank chooses to land on this continuum depends on both the objectives it seeks to

achieve in conducting an accountability report and the overall institutional culture. If the chief purpose of the report is to evaluate monetary policy—to assess policy actions from a more technical point of view and determine whether optimal policy choices were made—then an external evaluation will tend to be more useful, since it allows reviewers to more readily and openly critique policymakers’ actions from an extra-institutional point of view. If, on the other hand, the objective of the report is to provide accountability regarding the conduct of monetary policy—to explain the rationale behind the central bank’s policies and how these actions worked in service of price stability—an internal evaluating body will be more useful. This is because an internal evaluating body will have far more intimate insight into the central bank’s actions and reasoning as well as knowledge of the nuances of the domestic economy compared to an external body, which would have to expend significant time and resources to attain the minimum level of insight needed to prepare a robust and actionable report.

The final decision should also point to the need to mitigate potential drawbacks from either approach. As relates to internal evaluations, one of the potential risks is that an internal review may avoid providing any honest or tangible criticism of potential issues related to the conduct of policy. However, as the cases of the Riksbank and the Reserve Bank of New Zealand show, the most important factor determining whether internal reviews can be insightful and actionable lies in the institutional culture. If the central bank is able to foster an internal culture of transparency and openness, where feedback-sharing and healthy dialogue are an integral part of the team and work culture, this can mitigate some of the concerns that an internal evaluation is inherently uncritical and self-praising (see Figure 7.1).

FIGURE 7.1

The Openness-Usefulness Tradeoff: Considerations regarding Evaluating Body and Institutional Culture



Source: Papikyan et al (2026).

Availability of Resources

The other key consideration when selecting an evaluating body relates to the availability of resources. For internal evaluations, the primary challenge is whether there are sufficient internal resources within the existing monetary policy department staff to prepare a robust accountability report in addition to carrying out their standard responsibilities. For central banks with a large staff or well-designed human capital frameworks, this may be less of a concern compared to institutions with small and over-burdened teams.

In the case of external evaluations, the question of resource availability varies depending on the country at hand. Large, advanced economies may find a significant number of seasoned, independent economists who are willing and able to carry out high-quality assessments of monetary policy. On the other hand, small or emerging market economies may face significant challenges in finding domestic reviewers who are sufficiently well-versed in monetary economics (at a level at least on par

with economists within the central bank), while financial constraints, as well as knowledge gaps regarding the domestic economy, may limit the quality of external reviewers they are able to attract. Thus, even if an emerging market central bank is able to attract a team of world-class economists to conduct the review, the time needed to become intimately acquainted with the structure and characteristics of the local economy may prove prohibitive, particularly if a new team needs to be assembled each year.

Internal Evaluation Body at the CBA

Considering the above, and in keeping with the principles of the PRMAPS framework and the CBA's stated vision of achieving the highest standards for good governance and policymaking, the key objective of a review of monetary policy at the CBA should be to promote greater institutional accountability. Therefore, an internal evaluating body is best suited for this purpose, considering the staff's intimate knowledge of the central bank's actions and the nuances of the domestic economy and policymaking framework.

Similar to RBNZ and Riksbank cases, the internal evaluation is led by the Board, with the actual day-to-day work carried out by the staff of the Monetary Policy Department. This allows the Board to take a proactive role in promoting their own accountability and engaging closely with the staff, further strengthening the principles of individual accountability and Board-staff collaboration that form a cornerstone of prudent risk management approach at the CBA.

At the CBA specifically, the human capital framework and resource allocation under FPAS Mark II mitigates one of the chief concerns about having an internal evaluation body, namely, of insufficient resources. As described in the previous chapters, the CBA monetary policy department is designed to include four teams each comprising six economists, which, on a rotational basis, work on a different set of tasks in each quarter (i.e. production rounds, backing up the production team, re-

search, and development). The accountability report is the responsibility of any one of the three teams that are not working on the production round and naturally serves as a research topic or development project for those individuals. This ensures that the completion of the accountability report doesn't interfere with the standard production responsibilities of the MPD team (e.g. scenario-building, drafting the monetary policy report, and so on), while also serving as a useful research, training, and development opportunity for members of the other teams.

Finally, given the relative novelty of the CBA's risk management-based policymaking framework compared to more established approaches in the world, the selection of an internal evaluating body eliminates the challenge of finding external experts who are sufficiently well-versed in the nuances of the new framework, in addition to being experts of both global monetary economics and the Armenian economy. In this sense, the CBA accountability report can serve a further educational function that helps external audiences better understand the new framework and the risk management approach to monetary policy.

| Frequency of Evaluations

The experience of different central banks of the world suggests a frequency of 1–5 years for policy evaluation and report publication.⁸⁵ The CBA has adopted an approach that requires preparation of policy accountability reports to be conducted on an annual basis (similar to the practices of the Sveriges Riksbank and Norges Bank). The reports are published at the end of the first quarter of each year, to allow for the report to cover the conduct of policy during the preceding calendar year. A higher frequency in accountability reports (in the form of ex-ante evaluations) can have several benefits, that include:

85 See Papikyan, Avagyan, and Avetisyan (2026)

- providing greater incentives for policymakers to “do the right thing,” since their actions are being analyzed on a regular and continuous basis;
- helping track whether policy actions are working in service of medium-term outcomes, rather than making ex-post judgments well after the fact; this can also help avoid penalizing policymakers on the basis of information gathered after-the-fact, acknowledging that decisions are made under significant uncertainty;
- promoting greater dialogue between policymakers and external stakeholders, from government and financial markets to the general public;
- offering a platform for discussing relevant economic or policy-related issues in a timely manner.

| Content of Evaluations

The content of existing best-in-class policy evaluations in the world is usually designed to align with the characteristics and needs of the original FPAS Mark I framework, where the key tool that guides policy deliberations and communications is the baseline scenario. In this context, it is unsurprising that policy evaluations devote a significant share of their content to evaluations of forecast performance, where the quality of the forecast stands in as a rough proxy for the quality of policy itself.

The adoption of the risk management approach marks a fundamental shift from this tactic. As discussed extensively throughout the book, rather than publishing a single baseline scenario, the CBA takes a more comprehensive strategy, considering a number of scenarios for the evolution of the economy that have important implications for monetary policy. Where traditional frameworks seek to identify the “most likely”

future, the new framework instead emphasizes understanding (and quantifying, where possible) the key sources of risk and uncertainty, and designing policies of least regret that are intended to minimize the losses that could stem from these scenarios materializing.

Under this prudent risk management approach to policymaking, accountability cannot be about determining whether forecasts were well-constructed or why they deviated from actual outcomes. Instead, accountability is about understanding and explaining how the central bank thought about the key sources of risk and uncertainty that threatened price stability, and how they responded to and sought to manage these scenarios in order to achieve their constitutional mandate. This represents a broad shift in the idea of accountability from a more technical to a more holistic concept, one that is intended to demonstrate a sense of responsibility and commitment to the price stability objective.

Considering the above, and in keeping with the principles of the prudent risk management approach to monetary policy, the content in the CBA's accountability report focuses its main attention on discussing the key risks and uncertainties and how policy sought to respond to them. In summary, a robust accountability report for the CBA should answer the following key questions:

TABLE 7.1
Key Questions to Answer in the Accountability Report

Question	Approach to Answering
What were the key economic developments, risks, and uncertainties that the economy faced during the review period? How did the taxonomy of scenarios evolve over the course of the year amid new sources of uncertainty and new economic developments?	Summary of the global and domestic economy and taxonomy of scenarios in the period under review, using the published monetary policy reports as reference

In light of the above, how did the Board of the central bank make its policy decisions? What trade-offs did the Board consider in the context of a least regrets decision-making model? How did the Board communicate these considerations?	Assessment of the key risks, uncertainties, and scenarios that the Board members considered during each decision; explanation of trade-offs considered and the Board's "least regrets" logic and communication. Number of counterfactual analyses and policy discussions in the context of simple rules and alternative interpretations.
How did individual Board members arrive at their decisions, and what was their individual least regrets thinking? How did the concerns of individual Board members evolve over time?	Assessment of each Board member's final submissions and discussions during Board deliberations, with an emphasis on how their concerns evolved over time and their least regrets trade-off considerations for each decision
How did the decisions and communications impact markets?	Evaluation of changes in market expectations of the future path of the policy rate, yield curves and market reference scenarios; assessment of market responses in traditional transmission channels
How successful was monetary policy achieving its main goals of price stability?	Comprehensive analysis of inflation expectations and CB credibility (measures) as key dynamic factors for evaluation of monetary policy success.
What are the common critiques of the conduct of monetary policy by external stakeholders?	Review of public discussions of monetary policy (in traditional and social media) to identify commonly raised questions and/or critiques, with responses intended to clarify misconceptions and enhance economic proficiency

It is worth noting that the above questions merely cover the general scope of content that is touched upon in each accountability report. The handbook, published on the CBA website and in the appendix, provides greater detail about the appropriate structure and content, in order to ensure consistency between reports.

| External Communications

Having a systematic strategy for external communications and public relations can help ensure that accountability reports are transparently conducted and effectively communicated to all relevant stakeholders. Moreover, such a strategy aligns with the CBA's vision for having the highest standards for transparency and communications, as outlined in the previous chapters and in the CBA's monetary policy communications strategy.⁸⁶

Specifically, a clear and well-structured communication framework ensures that the accountability process, including objectives, methodologies, and findings, are communicated to key stakeholders in a transparent, easily accessible, and understandable way. A lack of clear communication can lead to misunderstandings or misinterpretations of the accountability reports, and could undermine the entire purpose for preparing accountability reports.

Considering the above, as well as examples of best-in-class communications in the world, the CBA has adopted a multi-pronged communications strategy that includes a media/press release, dedicated page on the CBA website, and social media strategy.

Press Release

The publication of the accountability report is usually accompanied by a press release, announcing the objectives and findings of the report in a clear and succinct manner. This is intended to engage members of the traditional media, who play an important role in disseminating this information to the broader public.

86 Refer to "Central Bank of Armenia Monetary Policy Communications Framework" (2024).

Dedicated Page on CBA Website

A dedicated page on the central bank website serves as a centralized hub for accountability reports. The webpage provides information about the purpose and objectives of accountability reports, transparent insight into how and by whom they are compiled, and offers easy access to all previous reports. This can align with broader institutional goals of promoting greater economic proficiency, and special topics and other information from accountability reports can be discussed in short articles published on this page.

Social Media and Other Tools

In addition to legacy media and the website, the CBA strives to leverage its social media platforms to reach a broad audience and promote greater public dialogue around policy accountability. This could include the CBA's existing social media platforms, such as Facebook, X, LinkedIn, and others.

In addition, when appropriate, Board members might appear in media interviews, in order to publicize the report, clarify any open questions, and reinforce the Board's commitment to accountability and price stability. Importantly, Board members only represent the official, institutional view of the CBA (as outlined in the Accountability Report), and refrain from making personal judgments that may differ from this view.

Credibility as a Definition of the Risks and Successes of Monetary Policy

Central bank credibility is the cornerstone of good policymaking. In the context of monetary policy, credibility refers to the degree to which the public and financial markets believe that a central bank will act consistently with its stated policy objectives, specifically, maintaining the medium-term price stability objectives. One simple way of thinking about

credibility is in the context of inflation expectations; for a perfectly credible central bank, the public and market participants will expect long-term inflation to be perfectly in line with the central bank's target. If economic agents trust that the central bank will keep inflation low and stable and always do whatever is necessary to maintain price stability, their wage- and price-setting decisions will align with that belief. In times when inflation rises due to various demand or supply shocks, well-anchored expectations and high credibility lower the costs associated with bringing inflation back to target. For example, in the event of a temporary supply shock (e.g. a short-term rise in imported food prices due to adverse weather conditions), a credible central bank may not need to raise interest rates at all. Since long-term expectations do not change, the economy is able to weather out the short-term supply shock, and inflation returns to target at the minimal possible cost.

But the most important facet of thinking about inflation expectations is that its credibility must be thought of as endogenous, meaning that it is determined by the central bank's actions themselves. Assuming that credibility is exogenous—in other words, that it is always perfect, regardless of what the central bank does or does not do—can be extremely dangerous. It can cause policymakers to underestimate how quickly credibility can erode if the central bank fails to act appropriately and sufficiently aggressively to a shock. Moreover, the process of gaining and losing credibility itself is nonlinear: it is extremely easy to lose credibility, but incredibly difficult and often costly to regain.

Seen in this light, policy credibility is an integral driver of how the Central Bank of Armenia approaches policymaking under its prudent risk management framework. Policymakers are explicitly focused on minimizing the losses that could arise from potential policy errors. Policy errors, by definition, lead to an erosion in credibility, something that can be avoided or at least minimized through a sensible risk management framework. Therefore, credibility gains a new level of significance; in many ways, an unnecessary and avoidable loss of credibility is the ultimate scenario that the central bank is always seeking to avoid.

Moreover, investments in the policymaking framework and strengthening institutional capacities are also important for building greater trust in the central bank and its commitment to its price stability objective.

Given this conception of credibility and its role within the framework, the accountability report also provides a comprehensive analysis of inflation expectations over the past year, which serves as a key indicator of the CBA's credibility and monetary policy success. Considering the pivotal role expectations play in shaping central bank credibility, the report examines inflation expectations from the perspectives of financial institutions and households. It then shifts focus to measures of credibility itself, presenting two methodological approaches: one based on financial dollarization and household inflation expectations, and another utilizing the Non-Traded Sticky Price Inflation measure, which reflects slow-moving underlying inflation dynamics and generalized excess demand pressures in the economy. This type of analysis allows the reader to understand how monetary policy actions impacted inflation expectations and central bank credibility, offering a general roadmap for assessing whether policy and communications worked in service of the stated objectives.

8.

LOOKING AHEAD

Governor Martin Galstyan

The essence of good monetary policy lies in part in the ability of the policymaking framework to adapt and evolve over time, in response to changing forces and undercurrents. This book has argued, rather forcefully, that the post-2020 global reality—whether economic, social, or geopolitical—marks a turning point from prior periods. This new order requires novel approaches to policymaking that can appropriately deal with today’s policy imperatives—a heightened level of risk and uncertainty—not just in Armenia, but around the world.

By developing the prudent risk management framework, the Board of the CBA has taken an important step toward operationalizing risk management approaches to monetary policy within an institutional setting. But in doing so, the Board of the CBA also acknowledges that some operational and procedural elements of the framework may need to evolve over time, in response to changing global and regional economic factors that are impossible to predict today. What characterizes a good framework is the institution’s commitment to reform and improve the framework in a continuous way.

To this end, the CBA will be evaluating the framework on a regular basis to ensure that the framework remains dynamic—that it is not simply a novel approach for a specific time and place that loses relevance over time. We remain steadfast in our institutional commitment to continue to invest in the framework, to reform and adapt it over time, and to do whatever is necessary at the institutional and operational level to ensure

that we continue to achieve our price stability objective and improve the welfare of the Armenian state and people.

Yerevan, April 2026

APPENDIX A. Statement of Long-Run Monetary Policy Objectives

Adopted effective March 17, 2026

As enshrined in “The Law of the Republic of Armenia on the Central Bank of Armenia,” the primary objectives of the CBA are to ensure price stability and financial stability. The Board of the CBA is committed to using its full suite of monetary policy instruments to achieve its price stability mandate and provide a nominal anchor for the economy.

We emphasize that the primary objectives of price stability and financial stability are a means to an end. The ultimate purpose of the CBA as an accountable public-sector institution is to improve the welfare of our nation. A commitment to achieving low and stable inflation provides a credible nominal anchor for the economy and thereby anchors inflation expectations, helps to avoid inefficient boom-bust cycles, stimulates investment, supports the economic development of the country, and improves living standards over time.

The CBA develops and implements monetary policy to achieve its price stability objective. The fundamental role of monetary policy is to provide an anchor for inflation and inflation expectations. The Board believes that a three percent inflation target is consistent with its price stability mandate. The inflation target is expressed in terms of the Consumer Price Index (CPI), since it is the best measure of the cost of living and final consumption expenditures, and is the primary reference point

for market participants when making planning decisions and setting contracts. Nevertheless, the overall CPI basket of goods and services includes several items that are subject to seasonal fluctuations and global economic developments, which are not directly influenced by monetary policy. We therefore consider alternative measures of inflation, such as core and non-traded sticky prices, which can provide useful information on the underlying inflationary environment.

The CBA's primary means of adjusting the stance and path of monetary policy is through changes in the expected path of short-term interest rates. If interest rates were to be constrained by the effective lower bound, the Bank would be prepared to use its full range of policy tools.

While emphasizing the primacy of achieving the price stability and financial stability mandates over the medium term, the CBA recognizes that it is also responsible for managing the short-run tradeoff between inflation and output. In an open market economy, periodic economic and financial shocks cause economic activity and inflation to fluctuate over time. In this context, the CBA does not target CPI inflation on a period-by-period basis and does not attempt to bring CPI inflation back to the target in the short term if it would result in undue economic and financial instability. In any economic situation, the CBA seeks to develop and implement monetary policy in a manner that brings inflation to the target in the medium-term (12 quarter) horizon, while minimizing associated social costs through a "least regrets" approach.

Effective monetary policy improves welfare by anchoring long-term inflation expectations and reducing the volatility of output and unemployment. Avoiding excessive volatility in the economy can result in substantial improvements in welfare by reducing average levels of unemployment and raising the productive capacity of the Armenian economy. The Bank emphasizes that placing weight on other near-term objectives must not be inconsistent with its primary responsibilities of achieving its three percent target in the medium term and maintaining price and financial stability.

The Board places great emphasis on the importance of communicating its policy and decision-making framework to the public in a clear and comprehensible manner. Clear and effective communication helps make policy more effective, and encourages financial markets, businesses, and the general public to better understand and manage risks and uncertainties. Moreover, this communications approach plays an important role in enhancing the transparency of monetary policy and central bank accountability, which is a key priority for the CBA as an independent public sector institution.

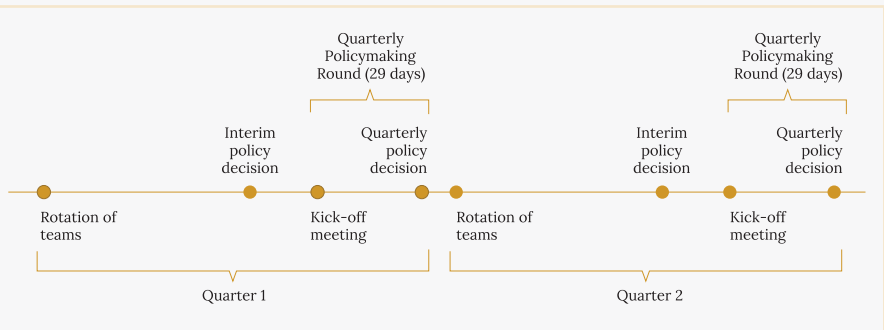
The Board will review and renew the Statement of Long-Run Monetary Policy Objectives during the first decision-making round of each year.

APPENDIX B. Practical Guide for Policymaking Rounds⁸⁷

Under the risk-management approach, the policymaking round has evolved from the older FPAS I model into a more continuous and preparatory process emphasizing transparency, efficiency, and capacity building. Analytical and scenario work that once occurred during the policy round is now largely completed beforehand, allowing the round itself to focus on synthesizing prior analyses and producing communication materials for decision day. The formal kick-off meeting functions mainly as a procedural marker for the Board, since most substantive work is already done through ongoing monitoring and prior discussions. Roughly half of the round's effort now centers on drafting reports and presentations, with the remainder split between updating analysis and scenario development. To support this workflow, weekly Board meetings before the kick-off have gained importance, and team rotations ideally begin about eight weeks in advance to ensure continuity between development and production phases.

⁸⁷ The editors thank Hayk Karapetyan for his work in developing this practical guide.

FIGURE B.1
Team Transition Timeline (Illustrative Example)



To ensure a seamless transition between policymaking rounds and an efficient rotation of teams within the department, several practical considerations should be taken into account:

- **Participation in Final Deliberations:** The backup team, set to take over in the upcoming round, should participate in the final deliberations meeting with the board. This allows the team to grasp the core of the discussions and key insights from policymakers before entering full production mode.
- **Team Transition Timing:** The transition between teams should occur after the final deliberations and policy decision meetings with the board in the middle of the first month of each quarter. Following this, the new team will formally assume responsibility for weekly meetings with the Board and will have sufficient time for creating all the materials necessary for external communication.
- **Full Utilization of Weekly Analytical Briefings:** Making full use of weekly briefing meetings before the kick-off meeting can help streamline tasks during the policymaking round. Drafting notes on the material presented in these meetings can serve as documentation that may later be incorporated into the Monetary Policy Report itself.

- **Scheduling Board Meetings in Advance:** The new framework involves frequent meetings with the Board, so planning these meetings ahead of time is crucial. Securing availability early prevents scheduling conflicts and reduces last-minute pressures on the team as the policymaking round progresses.
- **Efficient Material Transfer:** All materials, including presentations, dashboards, chart packs, text documents and model files, should be transferred between teams during the first week of rotation or stored in a secured cloud-based system accessible to all. This ensures continuity and easy access to essential resources during team transitions. Monetary policy report is just a summary document. All the analysis conducted during the full production cycle that underlie the MPR should be transferred between the teams in order to rule out repetition of tasks.
- **Strict Deadlines for Review:** A key factor in the smooth execution of the policymaking round is the establishment of strict deadlines for the review and feedback process on documents slated for publication. It is critical that the Board and other stakeholders submit their comments and suggestions by a predetermined date. While minor revisions can be accommodated up until the last day, addressing major conceptual issues on decision day or the day before is impractical, as the team will be handling multiple tasks and finalizing all preparations. This ensures a more organized and efficient workflow.

Current Analysis under FPAS Mark II

TABLE B.1.
Guide to Current Analysis

Guide to current analysis under FPAS Mark II	Example to illustrate the points
New data/information and possible macroeconomic interpretations	New data on border crossings suggests that inflow of Russians increased in October. Possible interpretations 1. Seasonal tourism 2. Non seasonal acceleration of tourism (external demand shock) 3. Another wave of relocants (possible impact on potential growth) 4. Etc..
Evaluation against existing or new hypothesis, risks or market expectations Conducting research to exclude some of the hypothesis or narrow down the possible narratives related to the new information	What will the macroeconomic environment look like under each of these scenarios? 1. Seasonal acceleration of MoM inflation in tourism sector, YoY inflation stable 2. Acceleration of both MoM and YoY inflation in tourism sector 3. Increase of spending categories not usual for tourism (appliances, furniture), increase of non resident employment and registered IE's
Evaluating relevance to monetary policy	What needs to be done with policy instruments under each of the scenarios? Case A/B? 1. Not relevant for MP 2. Exchange rate will stabilize, less relevant for MP 3. Higher trend appreciation and lower neutral interest rate. MP needs to adjust interest rates to account for trend appreciation and lower neutral rate. Might be acceleration of inflation initially but less imbalances are expected due to increased potential in the future.
Filtering and removing non relevant narratives and focusing on ones that provide potential significance for policymakers and repeating the cycle from beginning.	

| Practical Guide for Scenario-Building

Market Reference Scenario

The market expectations for the policy rate and the market reference scenario are well explained in the Book and the Monetary Policy Report. However, constructing a comprehensive market reference scenario in practice is a more complex task and requires a careful assessment of what is priced in financial market, along with some judgment from the team, as market information tends to focus primarily on policy rate expectations and is otherwise limited.

FPAS scenarios are built upon thinking about the following three fundamental questions:

- Where is the economy now?
- What are the underlying forces that drive the economy over the medium term?
- What needs to be done with policy instruments in order to reach basic policy objectives?

There is limited information on how the markets perceive the first two questions, but their expectations about the future interest rate path reflect these factors. What we observe in practice is the answer to the third question: how markets believe monetary policy will react in the future, based on their assessment of current economic conditions, underlying trends, and their understanding of the central bank's reaction function. Essentially, constructing a full-scale market reference scenario involves reverse-engineering the assumptions about key underlying economic conditions—such as inflation expectations, the business cycle position, the neutral interest rate, and other monetary policy relevant concepts—using the market's policy rate expectations as a guide. By analyzing how the market thinks about the third question, the team can infer their views on the first two.

It's important to note that constructing a market reference scenario is not a mechanical exercise aimed at creating a full-scale scenario, by replicating market expectations of future interest rates without considering the broader economic context. Instead, it involves a thorough examination of various data sources, including projections from international and local organizations, consensus forecasts, news, and other market-based information, to understand the economic narratives behind expectations of market participants.

Sometimes the views inside the market also differ significantly. For example, the monetary policy report included a box showing various estimates of the neutral interest rate for the U.S. economy. It was clear that these estimates differed significantly among market participants. The question then arises: which market expectations or assumptions about the neutral interest rate should be considered, given the divergent views within the markets? Because of these diverging views, key benchmark sources for each country are used to construct the market reference scenario. However, other information may also be taken into account, especially in cases where technical issues or uncertainties arise with the benchmark source or the information is outdated and etc. Here is a brief information about the benchmark sources for constructing the full scale market reference scenarios for each country.

United States: The Atlanta Fed's Market Probability Tracker is a useful guide for understanding the policy rate expectations by market participants. It provides information on the market's view of the Federal Funds Rate over 3-year horizon based on actual deals in Chicago Mercantile Exchange.

Euro Area: Bloomberg's Consensus Forecasts are mostly used to construct the market reference scenario.

Russia: Macroeconomic survey of the Bank of Russia serves as the primary source for constructing the market reference scenario.

Armenia: The quarterly macroeconomic survey of financial market participants by CBA is the primary source for constructing a full-scale market reference scenario. Short surveys on expected policy rate path are used to correct the quarterly surveys in case there are significant changes in the views of participants during the policymaking round.

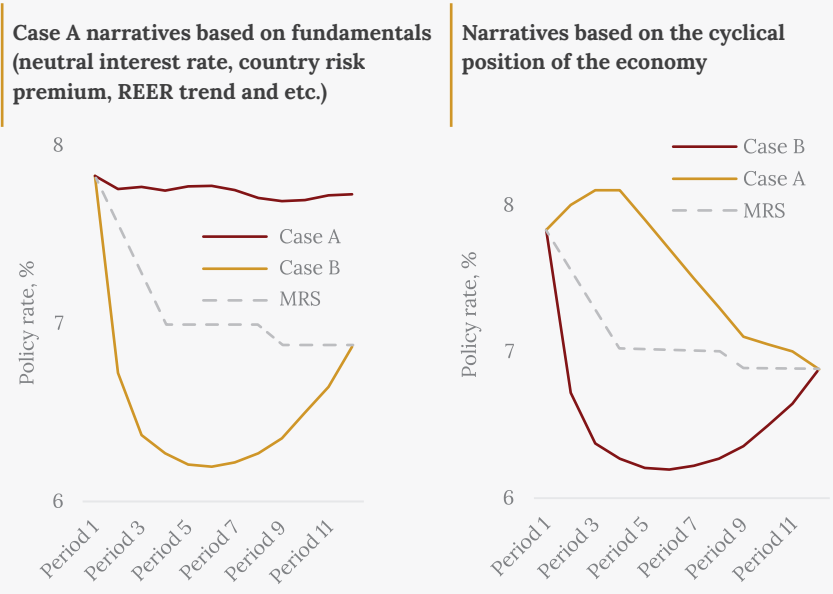
Illustrative Case A & B Scenarios

According to the developed framework Case A/B reflects a scenario that incorporates economic and financial developments that would require a higher/lower interest rate path than what is currently priced in financial markets that is consistent with guiding the economy back to its long-run equilibrium and to achieve price stability objective. Case scenarios should also be realistic, related to data and relevant for policy. So the starting point for constructing the Illustrative scenarios is to understand the key monetary policy relevant risks and uncertainties that are not priced in the market, however the narrative-based information from market participants is limited and there is not a strict line for assessing whether any type of risk or uncertainty is priced in the market or not. Additionally, the views inside the market can diverge creating a range of possibilities for market reference scenarios. Therefore, in practice good candidate scenarios for serving as a communication tool should reflect significantly higher or lower policy rate paths compared to market expectations over the 1-2-year horizon. At the end of the horizon policy rate paths should be similar unless there are key differences in the scenarios in terms of neutral interest rate assumptions.

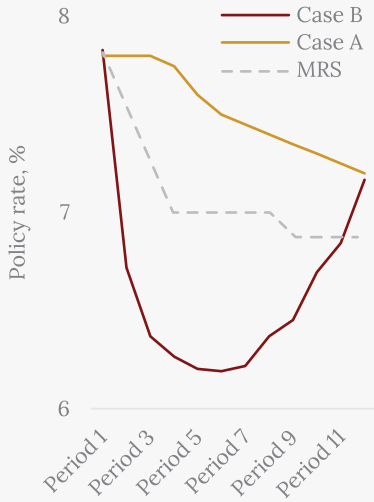
A key practical consideration when creating illustrative scenarios is how much the policy rate path should deviate from the market reference scenario. While there is no strict rule, a medium-term difference of around 50-100 basis points is generally sufficient to make these scenarios effective tools for communicating risks and uncertainties. At the same time, this difference is not so large as to give the impression that the scenarios are extreme or impractical, which could lead to communication challenges. A 50-100-basis-point deviation ensures that the

scenarios remain relevant to monetary policy, highlighting significant risks that warrant attention and could influence decision-making. This difference also ensures that minor changes in market expectations during the policymaking round are allowed, while maintaining a visual distinction between illustrative and reference scenarios. One would only need to reassess the market reference scenario in response to major shifts in market participants' narratives. A 100-basis-point difference also ensures that the illustrative scenarios discussed are distinct from the views of other market participants, whose perspectives may vary slightly from the benchmark information sources used to construct the market reference scenario. In other words, since market views differ, maintaining a significant visual gap between the Case A and Case B scenarios and the market reference scenario guarantees that the illustrative scenarios stand apart not only from the reference scenario but also from the views of other market participants.

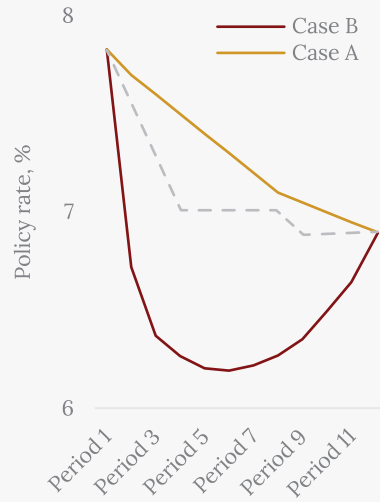
FIGURE B.3
Example of Illustrative Scenarios)



Illustrative Scenarios can both differ from the MRS in terms of long-term rate assumptions, but this doesn't mean the Board considers this to be the only or the preferred assumption to nudge the markets.



Possible visual asymmetry between cases doesn't necessarily mean higher or lower relevance of any of the scenarios or risks!



Ideally, the illustrative case scenarios will not cross the line of market expectations over the policy horizon. However, there may be instances where the scenario-consistent assumptions about the long-term neutral interest rates (trends) might differ from the market expectations (assumptions) about where interest rates will settle in the medium term. In such cases the policy rate path in the scenarios may end up being either higher or lower than the market reference scenario.

The policy rate path in illustrative scenarios A and B may also be asymmetric, meaning that the difference from the market reference scenario could vary between the two cases. However, since those scenarios are “illustrative” rather than “the most relevant” by nature, they cannot be used and interpreted by markets as a CB communication about the asymmetry of risks or asymmetry of relevance. This possibility of visual asymmetry is just a matter of scenario-consistent calibration for no particular reason in communication.

Since the illustrative case scenarios are used as communication tools for board members as a reference point to explain their decisions, they must also meet specific communication criteria to be considered strong candidates. Illustrative case scenarios are built on the core principle of endogenous monetary policy, meaning that monetary policy consistently aims to achieve the price stability objective by adjusting its instruments with sufficient force. As a result, the inflation projections across the scenarios may not differ significantly, especially in the medium-term horizon since monetary policy always strives to return inflation to its target. While these scenarios can reflect the uncertainty surrounding economic developments and future conditions, they should not suggest any uncertainty regarding the central bank's commitment to price stability. In the end, the central bank's communication must clearly and unequivocally affirm that monetary policy is fully committed to achieving price stability in all circumstances. The illustrative scenarios should emphasize this unwavering commitment to price stability in their design and messaging. This means that in any scenario at the end of a 3-year policy horizon inflation should always be closer to the inflation target, visually demonstrating this commitment.

| Data-Driven Planning for the Production Cycle

Planning during the policymaking round and before the kick-off meeting primarily revolves around the data releases for the Armenian economy. Since some of these data points are released quarterly, much of the analysis and reporting related to specific data points can be completed immediately after their release. This helps to distribute the workload more evenly before and during the policymaking round. The following calendar highlights the key data releases for the Armenian economy, which are used to create a practical guide outlining the main tasks for the policymaking round, such as drafting the monetary policy report, conducting scenario-building analysis, and performing current analysis.

This calendar is structured around the actual data releases related to the Armenian economy for the 4th quarter of 2024 and begins immediately after the Monetary Policy (MP) decision, when the next team assumes responsibility for the policymaking round. While it is specifically designed for Q4 2024, it can be applied to any policymaking round for similar planning purposes.

The full production cycle spans a period of three months. In the example provided, it begins on Monday, September 16, and concludes on Friday, December 13.

FIGURE B.4
Key Data Releases for a Typical Production Cycle
(Q4 2024 Example Shown Below)

Mon	Tues	Wed	Thurs	Fri
Sep 16 Team takes over the production cycle	17	18 <i>Analytical briefing to Board</i>	19	20
23 Financial market data August (loans, deposits, interest rates)	24	25 <i>Analytical briefing to Board</i> EAI August	26	27
30 Balance of payments (Q2)	Oct 1	2 <i>Analytical briefing to Board</i>	3 CPI September short release	4

7 Soc. economic Situation Aug Labor market Quarterly survey (Q2)	8	9 <i>Analytical brief- ing to Board</i>	10	11 CPI September full release
14	15 Remittances September	16 <i>Analytical brief- ing to Board</i>	17	18
21	22	23 <i>Analytical briefing to Board</i> <i>Survey of policy rate expecta- tions up to one year</i>	24 Financial mar- ket data Sep (loans, deposits, interest rates)	25 EAI September (Output, Trade)
28 Interim Deci- sion and Final Deliberations Meeting with the Board	29 Decision Day & External Comm. EMPS Transparency report	30 <i>Analytical brief- ing to Board</i> <i>Survey update</i>	31	Nov 1
4	5 Social-eco- nomic situation September CPI short re- lease	6 <i>Analytical brief- ing to Board</i>	7	8 Quarterly Macro projec- tions of market participants

11 Kick-Off meet- ing CPI full release	12	13 <i>Analytical brief- ing to Board</i>	14	15 Remittances October
18	19	20 <i>Analytical brief- ing to Board</i> GDP (prod, exp.) for 2024Q3	21	22
25 Scenarios Meeting EAI October	26 Financial data October (Loans, Deposits Interest rates)	27 <i>Analytical briefing to Board</i>	28	29
2 Bank lending conditions quarterly survey (Q4)	3	4 <i>Analytical briefing to Board</i> <i>Survey of policy rate expectations up to one year</i> <i>CPI Oct short release</i>	5 Survey of Inflation expectations (Q4) EAI Oct extended	6
9 Final Delibera- tions	10 Decision Day & External Com- munication Individual one-pagers	11 Technical Meeting with Analysts <i>Survey update</i> <i>CPI oct full</i>	12	13 End of Produc- tion Cycle

| Planning MPR Drafting

The exact content and length of the MPR are not fixed under the new framework. Instead, it aims to capture all relevant discussions on current and underlying economic developments, risks, and uncertainties that affect monetary policy, as extensively covered during the policy-making round.

The FPAS II framework seeks to enhance central bank transparency to a new level, where all discussions with and within the Board are made public. Essentially, the same presentation delivered to the Board is shared with financial analysts the following day, thereby transparently communicating the core of the Board's discussions to the market.

A key practical consideration is aligning the final presentation to the Board with the MPR. If something is discussed with the Board, it should be included in the MPR, and vice versa.

Although the content of the MPR is flexible and may change from time to time, there is a general structure that often remains consistent. This allows for planning the current analysis and drafting of the MPR based on the data release calendar, as outlined in the table below.

TABLE B.2
MPR Drafting Guideline

Task	Pages (Not restricted)	Team members responsible	Due date (first draft)
1A. Executive Monetary Policy Statement	1	Proj. Coord.	Monday, Kick-off + 28
1B. Summary of Economic Conditions	0.5	Proj. Coord.	Friday, kick-off + 11
Global Economy	0.5		Friday, kick-off + 11
Domestic Demand Conditions	0.5		Friday, kick-off + 11
Labor Market & Inflation	0.5		Wednesday, kick-off + 16
Monetary Policy			
3A. Global Economic Developments	1		Friday, kick-off + 4
United States	1		Friday, kick-off + 4
Eurozone	1		Friday, kick-off + 4
Russia	1		Friday, kick-off + 4
Commodity Markets	1		Friday, kick-off + 4
Special Topic:			Friday, kick-off + 4
Third-Party Projections (Global, Bloomberg)			
3B. Domestic Demand Conditions	1		Friday, kick-off + 11
GDP	1		Friday, kick-off + 11
Consumption & Investment	1		Friday, kick-off + 11
External Trade & Demand	0.5		Friday, kick-off + 11
Fiscal Policy			

3C. Labor Market & Inflation	1		Friday, kick-off + 4
Labor supply and demand	0.5		Friday, kick-off + 4
Wage Growth	0.5		Friday, kick-off + 4
Inflation	0.5		Friday, kick-off + 18
Inflation Expectations	table		Friday, kick-off + 4
Third-Party Projections (Armenia)			
Financial Markets			
Market Expectations of Policy Rates	0.5		Friday, kick-off + 4
	0.5		Friday, kick-off + 18
Bank Lending Conditions	0.5		Friday, kick-off + 11
Nominal Exchange Rate			
Unobservables			
Output gap	0.5		Wednesday, kick-off + 16
REER trend	0.5		
Neutral interest rate	0.5		
3E. Taxonomy of Scenarios	2	Board Coord.	Wednesday, kick-off + 16
3F. Monetary Policy Outlook	charts		
Market reference scenario	1		Wednesday, kick-off + 16
Case A	1		
Case B	charts		Friday, kick-off + 25
Scenario Charts			
Macrotables	2		Friday, kick-off + 25
MPR boxes	--		Wednesday, kick-off + 16
Data files for MPR			Friday, kick-off + 25

Practical Guide for “Not” the Model Operators

Not-the-model operators play a crucial role in quantifying and visually representing the stories and narratives discussed during the production cycle. These include the market reference scenarios and illustrative case scenarios. For practical reasons, it is beneficial to have two people working on the model-based scenarios during the policymaking round. This ensures backup, so if one person is unavailable, the other can continue operating the model, especially given the complexity of working with GPM (global economy) and QPM (domestic economy) models at the same time. Therefore, it's essential to always have two people assigned to this task.

It is also advantageous for the model operators to be the same team members who are directly responsible for the external sector, such as performing current analysis and generating scenarios for key macroeconomic variables. This is because the first two weeks of the policymaking round are particularly intense, with a heavy focus on drafting exercises, making it essential to have consistency in who handles these tasks.

For this purpose, it is often useful to begin working on the external sector before the kick-off meeting. This includes understanding current and underlying economic developments, proposing and testing various hypotheses related to interpreting these developments, and understanding the market reference scenario for the external sector.

Creating a market reference scenario during the policymaking round is an ongoing task. It is helpful to have estimates available at specific points to draft the monetary policy report and begin considering illustrative scenarios, such as Case A and Case B. However, this process is continuous and does not conclude midway through the policymaking round, as new information can emerge that may significantly alter market expectations regarding policy rates, either in the external sector or the domestic economy. It's important to incorporate this type of information and reassess the reference scenario whenever there is a significant shift in the market participants' narratives during the policymaking round.

TABLE B.3**Macroeconomic Projections and Scenarios Timeline**

Task	Team members	Due date
Input data for GPM (global economy model) Short term macroeconomic assessments aligned with market expectations (US, EU, Russia, Commodity markets)	Model operators	Kick-off
Market reference scenario for external sector Global assumptions (US, EU, Russia, commodity markets)	Model operators	Kick-off + 4
Input data for QPM (domestic economy model) Short term macroeconomic assessments for Armenia aligned with market expectations	Team working on domestic economy	Kick-off + 8
Market reference scenario Armenia	Model operators	Kick-off + 11
Case A & B scenarios - Global economy - Domestic economy	Model operators with the team	Kick-off + 23

TABLE B.4**Team Responsibilities on Decision Day**

Monday: Final Staff Presentation to the Board

Time	Process	Role of Team
10:00 – 11:30	Presentation to the Board	Finalizing the external communication documents
11:30 – 13:00	Questions/discussions	
13:00 – 14:00	Break	

14:00 – 15:00	Board discussion	Taking notes for transparency report
15:00 – 15:30	Final thoughts of individual Board members	
15:30 – 16:00	Review of MPR/EMPS	Editing the MPR/EMPS
After 16:00	Board prepares the final submissions	Team members working on EMPS and transparency report in two languages

Tuesday: Decision Day

Time	Process	Role of Team
9:00 – 10:00	Policy discussion	Team members take notes during the Board discussion in order to draft the transparency report
10:00 – 10:30	MP decision	
10:30 – 11:30	The Board reviews the EMPS	Team members edit the documents simultaneously for publishing it at 12:00
12:00	The Decision and EMPS is published at the website and social platforms	Team members send the final versions of EMPS (in 2 languages) to external communication team at least 15 minutes before 12:00
12:00 – 13:45	Board members finalize their final submissions by themselves either in Armenian or in English	Team members finalizing the presentation for press conference in Armenian
13:45	Board members send their final submissions to head of MPD and projection coordinator (strict deadline). Submissions after this will not be considered for publication	
14:00 – 15:00	Press conference	Team members prepare bilingual (Armenian, English) versions of the Board final submissions (up to 8 submissions)

15:30 – 16:30	Meeting with Board members to review and approve the transparency report	Team members send all the documents (in two languages) to external communication team at least 15 minutes before 18:00.
18:00	Publication of • MPR (Arm, Eng) • Chart packs (Arm, Eng) • MPR data files (Arm, Eng) • Transparency report (Arm, Eng)	

APPENDIX C. Monetary Policy Accountability Handbook

| Introduction: Purpose and General Principles

This handbook aims to outline the procedures, standards, and methodologies for preparing the CBA annual Monetary Policy Accountability Report (“MPAR”). This document serves as a guide to ensure that the process of preparing and communicating accountability reports is consistent, transparent, and replicable. This aligns with the CBA’s broad commitment to high standards of governance, communication and transparency, as outlined in its “Strategy 2025–2027” document. The handbook is intended to provide clear instructions regarding processes and standards for the individuals and teams involved in preparing the accountability report, such that the process aligns with the principles outlined in the overall policymaking framework. The scope of this document encompasses all aspects of the report’s preparation, from the formulation of its contents to the communication and dissemination of the final product.

This handbook builds upon the theoretical considerations and general recommendations presented in Papikyan et al (2025), as well as the decision by the Board of the CBA to approve the formal accountability framework.⁸⁸

88 Refer to Papikyan, Avagyan, and Avetisyan (2026).

In line with the CBA's broader commitment to accountability, the handbook aims to:

- **Establish a Robust Framework for Accountability Reporting:** The handbook sets in place practical and procedural principles stemming from the CBA's accountability framework. The purpose of this practical guide is to guarantee that accountability reporting is not viewed as an ad-hoc exercise but rather as an integral part of the CBA's ongoing commitment to transparency, policy effectiveness, and good governance. It outlines a clear, standardized process that promotes consistency across reports and ensures that these reports follow best practices and are consistent with the logic of the prudent risk management approach to monetary policy.
- **Foster a Culture of Transparency and Openness:** A core objective of this handbook is to “put into action” the principles of transparency that the central bank prioritizes. By formalizing the accountability reporting process—and making clear precisely how, when, by whom, and why these reports are prepared—the handbook makes the accountability reporting process itself transparent and understandable, both within and outside the central bank. This is an important component of ensuring that reports are unbiased and credible for key stakeholders.
- **Incentivize Good Policymaking:** The handbook builds upon the foundational idea at the root of FPAS Mark II, which is that transparency is the foundation for central bank accountability, which in turn incentivizes good governance. Therefore, exercises such as compiling an accountability report can serve this goal by encouraging policymakers to reflect on their decisions, learn from past actions, and maintain a commitment to continuously improving their processes and frameworks to serve institutional and societal objectives. This feedback loop strengthens institutional capacities, contributing to the CBA's stated goal of having best-in-class policy-making capabilities.

- **Clarify the Roles and Responsibilities of Stakeholders:** One of the central functions of the handbook is to delineate the roles and responsibilities of all stakeholders involved in the preparation of the accountability report. This is important for maintaining productive and efficient processes (in line with CBA human capital principles), as well as promoting transparency about how the report is prepared.

Drawing from these principles, the following handbook provides a practical application of the CBA's Monetary Policy Accountability Framework. Section II covers the content and structure of each accountability report. Section III details the processes for preparing accountability reports, including the team structure, workflow, and roles and responsibilities. Section IV lays out important technical requirements related to reporting standards, data/chart standards, and so on. Section V discusses the communications strategy and key tools.

| Accountability Report Structure and Content

In order to ensure that reports remain consistent from year to year, this section provides a clear overview of the content that must be covered in each accountability report. Specifically, it delves into the questions that must be answered and the issues that must be covered, as well as providing guidance on how best to address these topics. Some sections provide significant flexibility to change based on the developments and key issues in that given year, while other sections are proposed to keep relatively fixed and unchanging.

The Accountability Report is structured in the following manner:

1. **Economic Developments and Context:** summary of global and domestic economic developments in the period under review, to serve as context for the remainder of the report.

2. **Conduct of Monetary Policy:** overview of the conduct of monetary policy over the past year, focusing on how the CBA managed risks through a framework of “least regrets.” The discussion can also be structured around counterfactual policy analysis and results. It should also address the effects and outcomes of monetary policy during the review period, including inflation expectations and long-term central bank credibility.
3. **Market Response to Policy Decisions:** examining how financial markets responded to central bank policy decisions and related communications, in the context of market expectations of the future policy stance, shifts in financial market interest rates, and the yield curve.
4. **Addressing Common Questions on Monetary Policy:** provide responses to common questions on the conduct of monetary policy over the past year, drawing upon frequent questions or comments raised by members of the media, academia, financial markets, and the general public over the course of the year. The purpose of this section is to better clarify the objectives, purpose, and conduct of monetary policy; address potential misconceptions; and explain important topics relevant to understanding monetary policy conduct.

Section I: Economic Developments and Context

Section I presents a summary of global and domestic economic developments in Armenia over the past year. The primary goal is to offer a clear and concise summary that captures the state of the economy, identifies key drivers, while emphasizing the key risks and uncertainties that influenced the discussion of monetary policy risks. As in the Monetary Report, the focus of the summary is to elucidate the two ingredients essential for economic analysis:

- Where did the economy stand over the past year?

- What were the underlying forces driving the economy, and what were the key risks and uncertainties impacting interpretations of these dynamics?

This section should follow the same analytical approach that is consistent with the prudent risk management approach to monetary policy. Specifically, the analytical emphasis should be on the key sources of uncertainty, utilizing a scenario-based approach to assess plausible interpretations of current and underlying economic conditions.

For subsections A-D (see Table C.1), just as with the Monetary Policy Report, the structure of the subsection is not rigid and should be tailored based on the relevance and importance of the key economic factors in any given year. The Accountability Team should decide how to best organize this section by focusing on the most pressing developments in the global economy, which may vary year-to-year. Subsection E follows a more rigid and consistent approach from report to report, as described in greater detail below.

TABLE C.1
Structure and Objectives of Section I

Section	Content	Purpose	Structure
A. Global Economic Developments	- Growth in key trading partners & other major economies - Labor markets and inflation - Monetary, fiscal, and other policies - Commodity markets	Understand how external developments affected Armenia's economic outlook and inflation dynamics	Flexible

B. Domestic Demand Conditions	- Consumption, investment, trade - External trade, tourism remittances - Fiscal policy - Exchange rate - Relative position of the economy	Assess the sustainability and resilience of domestic demand conditions in the period under review, with emphasis on risks and uncertainty	Flexible
C. Labor Market & Inflation	- Employment and wage growth - Inflation & underlying inflation - Inflation expectations	Provide insights into the inflationary environment and labor market conditions over the past year, with emphasis on risks and uncertainty	Flexible
D. Financial Markets	- Neutral rate - Country risk premium - Yield curve - Bank lending - Nominal exchange rates	Track financial market developments in the preceding year and their interaction with monetary policy stance and expectations	Flexible
E. Markets' View on Economic Outlook	- Market Reference Scenario	Capture how financial market participants interpreted economic developments and how those interpretations shaped expectations for future policy and macroeconomic trends	Fixed

Section II: Conduct of Monetary Policy

Section II presents an overview of the conduct of monetary policy over the past year, focusing on how the CBA managed risks through a framework of “least regrets.” The section begins with an annual taxonomy covering the different types of scenarios that policymakers considered throughout the year, reflecting a summary of the universe of major issues the Board was concerned about. The section then proceeds to assess how the Board arrived at and communicated their policy rate

decisions, what trade-offs they managed, and how Board members' concerns regarding key risks, uncertainties, and trade-offs evolved over the year. It should also address the effects and outcomes of monetary policy during the review period, including inflation expectations and long-term central bank credibility.

TABLE C.2**Structure and Objectives of Section II**

Section	Content	Purpose
A. Policy Relevant Risks and Uncertainty	Annual Taxonomy of Scenarios capturing the dynamic evolvement of policy relevant risks and uncertainties over the year. Notes which quarters risks were added or removed.	Structured and comprehensive assessment of risks shaping the monetary policy discussions during the year
B. Monetary Policy Response	Detailed account of how the CBA Board arrived at policy decisions over the year. Includes discussion about how the Board managed important trade-offs under “least regrets” approach, summary of decisions and voting outcomes, decision-by-decision rationale with accompanying graphs, and ex post analysis.	Explain how monetary policy decisions were made under prudent risk management approach
C. Decision-making Dynamics	How did individual Board members arrive at their decisions, and how did their concerns regarding key risks, uncertainties, and trade-offs evolve over the year? Uses meeting minutes and individual vote explanations. Includes tables enumerating key risks per Board member and vote statements, showing evolution over the year.	Highlights the individual accountability of Board members and their risk considerations in decision-making.
D. Monetary Policy outcomes: Inflation expectations and CB credibility	How did inflation expectations evolve over the past year? How did survey-based measures of inflation expectations reflect public confidence in the central bank? What trends emerged in underlying inflation measures, such as NTSPI? How did market-based measures of inflation expectations evolve, and what do they signal? How did monetary policy communication impact credibility and expectations over time?	Analyze the degree to which inflation expectations remained anchored and what that reveals about the credibility and effectiveness of the CBA's monetary policy actions and communications.

- A. Policy Relevant Risks and Uncertainty:** One of the key innovations of the CBA's prudent risk management framework for monetary policy is the design and regular publication of an evolving *Taxonomy of Scenarios* as part of each Quarterly Monetary Policy Report. This dedicated subsection aims to provide a comprehensive and structured assessment of the diverse risks, shocks, and sources of uncertainty that have shaped monetary policy deliberations, presented within the *Annual Taxonomy of Scenarios*. The Annual Taxonomy of scenarios serves as a structured summary of the various policy-relevant scenarios considered by the Board, highlighting the principal issues discussed during the year that could influence monetary policy decisions over the medium term. The *Annual Taxonomy of Scenarios* represents a hybrid consolidation of the four quarterly taxonomies developed throughout the year. It captures the full universe of risks and sources of uncertainty discussed over the past 12 months. This approach helps ensure that the Annual Taxonomy includes not only the scenarios that were actively monitored in the most recent quarter but also those that were previously considered but later omitted due to reduced relevance. By bringing together the evolving judgment and deliberation of policymakers across the year, the Annual Taxonomy offers a more complete picture of the risk environment that has shaped monetary policy decisions. It supports institutional learning, strengthens transparency, and enhances the robustness of forward guidance under a least-regrets decision-making framework. To ensure transparency and provide a clear historical record of the evolving risk environment, the Annual Taxonomy of Scenarios should clearly note in which quarters those risks were considered and/or removed from the matrix.
- B. Monetary Policy Response:** The primary purpose of this section is to provide a detailed account of how the CBA's Board arrived at monetary policy decisions over the past year. It outlines the decision-making process and highlights key trade-offs policymakers managed in the context of "least regrets." It also explains how monetary policy decisions were communicated to external stake-

holders. This section begins with a brief overview of the conduct of monetary policy in prior years to provide the necessary context for understanding the current policy stance. It then summarizes the monetary policy decisions made over the reporting period, including the overall direction of policy, and the voting outcomes of each meeting. Following this, the section presents a decision-by-decision breakdown, outlining the Board’s stated rationale, the key trade-offs considered under the “least regrets” approach, and the broader macroeconomic factors that underlay each policy decision. Accompanying each decision discussion is a graph that displays the full universe of risks—both Case A and Case B—that Board members identified and discussed.⁸⁹ This approach helps illustrate how the Board arrived at each specific decision, while preserving important information about the overall dynamics and considerations within the Board. To better demonstrate how the prudent risk management approach to decision-making actually impacted the Board’s policy actions over reporting period, the section usually includes a simple, *ex post* analysis that compares the CBA’s actual policy actions with the policy rate that would have been adopted if the Board instead followed simple rules (types of Taylor rule), assuming perfect foresight. The versions of the simple rule used in the report usually refer to standard Taylor rule, Taylor rule in differences⁹⁰, and other possible modifications as decided by the Accountability team during any specific review. The coefficients for standard rules for Armenia are usually derived from Mkrtchyan and Stepanyan (2006). This discussion should display the policy outcomes generated by simple policy rules alongside the actual policy decisions made by the Board, as well as the evolution of market expectations regarding the policy rate path throughout the year.

- C. Decision-Making Dynamics:** This section is intended to promote an important principle of CBA governance, which is the individu-

⁸⁹ The Python code for the graph is presented in the Exhibit 1.

⁹⁰ Refer to Equation 10 in Mkrtchyan and Stepanyan (2007).

al accountability of Board members. It elucidates how individual Board members arrived at their decision, in terms of the key risks and uncertainties that they considered during deliberations and voting. This is based on an analysis of both the record of meeting minutes as well as the individual vote explanations submitted by each Board member. Most importantly, this section focuses on how Board members made their decision—what were the key policy trade-offs that they considered when making their decision? Given a “least regrets” decision-making model, what types of outcomes (errors) were Board members seeking to avoid? Did any considerations of risks (including tail risks) influence or temper their decision in any direction? How did the Board members synthesize this diverse set of risks and uncertainties when casting a single vote? To answer this question, this section provides a series of tables for each policy decision, which enumerates the key risks/uncertainties that each Board member identified as particularly pressing and factoring into their decision-making, as well as how these considerations evolved over the year. This is followed by a statement of their vote and an assessment of their “least regrets” policy considerations and assessments of policy trade-offs.

- D. Monetary Policy: This section provides brief context on the monetary policy stance over the current cycle, as well as additional context on policy in preceding years that may be relevant for the reader to better understand the sections that follow in the report.

Section III: Market Response to Policy Decisions

This section examines how financial markets responded to central bank policy decisions and related communications. It aims to assess how expectations regarding the future policy stance are shaped by both observed macroeconomic conditions and the signals conveyed through central bank decisions and forward guidance. It starts by discussing the evolution of the yield curve over the past year, focusing on how policy actions along with economic developments domestically and globally shaped market expectations and interest rate movements. The section

should also incorporate analysis about general movements in financial market interest rates (e.g. lending rates for consumer loans, mortgages, and business loans). One of the most important parts of this section is the analysis of market expectations of the future path of the policy rate. This part should start with a clear snapshot of market expectations at the beginning of the period, then proceed to an assessment of market expectations in the period before and after each decision, attempting to understand how and why expectations changed over the year. To do so, the section should begin by summarizing the expectations that prevailed before the decision. This includes noting the expected policy rate path and capturing the key narratives driving those expectations, as summarized in the short-term market surveys. Next, identify the primary factors influencing these expectations—such as monetary policy trends in major economies, domestic inflation outlook, geopolitical developments, or internal demand conditions. Then, clearly describe the actual policy decision taken by the central bank, detailing any changes to the interest rate and highlighting the tone and substance of its communication, including risk assessments or forward guidance. After the decision, assess how markets reacted—did expectations shift, and if so, by how much? Use updated survey results to illustrate this. It is equally important to explain whether any uncertainties or divergences in market views persisted, even after the central bank’s communication, and what risks or concerns continued to weigh on expectations. Finally, conclude with a discussion of the broader implications—what the episode reveals about the central bank’s credibility, the effectiveness of its communication, and how confidently markets appear to be aligning their behavior with the bank’s stated outlook. The analysis should always stay focused on the following key questions:

- What did markets expect prior to the policy decision?
- What risks or assumptions influenced those expectations?
- How did the actual policy decision (and communication) differ from or align with those expectations?

- Did the decision and communication of risks shift expectations about the future policy path?
- What risks or concerns continued to shape expectations after the decision?

Section IV: Monetary Policy Outcomes

This section is intended to provide a comprehensive analysis of inflation expectations over the past year, which serves as a key indicator of the CBA credibility and monetary policy success. Considering the pivotal role expectations play in shaping central bank credibility, the section first examines inflation expectations from the perspectives of financial institutions and households. It then shifts focus to measures of credibility itself, presenting two methodological approaches: one based on financial dollarization and household inflation expectations, and another utilizing the Non-Traded Sticky Price Inflation measure, which reflects slow-moving underlying inflation dynamics and generalized excess demand pressures in the economy. This type of analysis allows the reader to understand how monetary policy actions impacted inflation expectations and central bank credibility, offering a general roadmap for assessing whether policy and communications worked in service of the stated objectives. For greater detail on how to analyze the various subcomponents in this section, including the calculation of the credibility indicator, refer to Ghazaryan, Avetisyan (2026, upcoming research paper).

Section V: Addressing Common Questions on Monetary Policy

Section V provides responses to common questions on the conduct of monetary policy over the past year, drawing upon frequent questions or comments raised by members of the media, academia, financial markets, and the general public over the course of the year. The purpose of this section is to better clarify the objectives, purpose, and conduct of monetary policy; address potential misconceptions; and explain important topics relevant to understanding monetary policy conduct.

Processes, Work Flow, and Roles & Responsibilities

Roles & Responsibilities

The preparation of the CBA's MPAR relies on input and active involvement of four key stakeholder groups: the CBA Board, the Staff (dedicated accountability team), the CBA Public Relations Service, and external stakeholders (e.g. financial markets, media, general public).

CBA Board

The CBA Board holds the ultimate responsibility for ensuring the integrity and transparency of the monetary policy decision-making process, ensuring that the accountability report aligns with the central bank's objectives and serves as a clear reflection of its monetary policy decisions. Moreover, having the Board serve as a key player in the preparation of the accountability report allows the Board to take a proactive role in enhancing its own accountability. The Board's responsibilities include the following key functions:

- **Establishing the Accountability Framework:** The CBA Board is responsible for establishing and affirming the framework for the accountability process, including objectives, methodologies, and principles.
- **Providing Direction for the Report:** The Board, under whose auspices the report is being prepared, should shape the general direction for the content of the accountability report. This includes ensuring that the report aligns with the CBA's stated objectives, the law, and public responsibilities.
- **Reviewing and Approving the Report:** The CBA Board is additionally responsible for reviewing and approving the accountability report before its release.

- **Taking Ownership of External Communications:** In all external communications, the Board of the CBA, should convey the official institutional stance of the CBA, including, most importantly, during media interviews. Additionally, the Accountability report comprises the core of the package presented to the Parliament on an annual basis and thus ensures the Board's public accountability to elected representatives.

Staff: Dedicated Accountability Team

The staff of the MPD is responsible for carrying out the actual report—preparing the text and analysis and doing the “heavy lifting.” The specific characteristics of the CBA's human capital framework mean that each year, there can be a dedicated team of six individuals responsible for carrying out the report—known as the “Accountability Team”—which rotates and reshuffles each year. Specifically, the CBA monetary policy department is designed to include four teams each comprising six economists, which, on a rotational basis, work on a different set of tasks in each quarter (i.e. production rounds, backing up the production team, research, and development). The accountability report should be the responsibility of any one of the three teams that are not working on the production round (decided in advance). This helps ensure that the completion of the accountability report does not interfere with the standard production responsibilities of the MPD team (e.g. scenario-building, drafting the monetary policy report, and so on), while also serving as a useful research, training, and development opportunity for members of the accountability team. The key roles for the Accountability Team include the following:

- **Preparing the Accountability Report and other related documents:** The Accountability Team is primarily responsible for the preparation of the accountability report, which includes compiling the necessary data, conducting analysis, drafting text, preparing presentations, and so on. Given this key role, the Accountability Team is responsible for ensuring that all documents align with the standards and expectations described in this handbook and in other CBA guidelines.

- Coordinating with internal stakeholders: The Accountability Team works closely with other internal teams, departments, and the Board to gather the necessary data, insights, and context required for the accountability report. The team is also responsible for collaborating with the Board to ensure that the report reflects their feedback and comments during reviews and draft iterations.

Public Relations Service

As the main body responsible for overseeing all official external communications at the CBA, the PR and Communications department has an important role to play in promoting public engagement regarding the Accountability Report. In this context, key responsibilities include the following:

- In collaboration with the Accountability team, the PR team helps identify the most frequently asked questions about monetary policy. These questions are later included in Chapter 3 of the Accountability Report: Addressing Common Questions on Monetary Policy.
- Coordinating the publication and release of the Accountability Report
- Organizing media interviews
- Running social media platforms; this includes preparing social media-friendly content (e.g. infographics, etc.) based on information contained in the Accountability Report
- Ensuring key messages reach their intended audiences

External Stakeholders (Financial Markets, Media, Public)

For the accountability report to serve as a dynamic document that truly promotes greater accountability and public engagement, it is necessary for the CBA to find ways to engage with these key stakeholder groups. This includes making reasonable effort, such as through the various

communications channels, to motivate external stakeholders to engage with the report. Additionally, external stakeholders would be expected to contribute to the public discourse on monetary policy, using the report as a key starting point for informed debate and discussion.

Internal Resource Allocation

As mentioned above, the CBA MPD's organizational setup is designed such that there are four teams of six economists, each of which rotate on a quarterly basis, moving from production to back-up to research and development. One of these four teams should be assigned as the "Accountability Team" each year. This team should devote their entire time and resources during the first quarter of the year to preparing this report and should be relieved of other conflicting duties to allow them to focus on producing a high-quality report.

Because teams are shuffled each year, and rotate throughout the year, serving as part of the Accountability Team provides staff with the opportunity to engage in analyzing complex issues regarding the conduct of monetary policy. In line with the dynamic learning model established at the MPD, this can serve as a very important training and development tool for staff members, particularly as it relates to enhancing their understanding of policy, the role of accountability, and engaging with external stakeholders. Finally, the rotational basis, coupled with the standards and procedures outlined in this report, supports the idea of having "generalist" economists who are well-versed in all aspects of monetary economics and can draw linkages with policy.

Accountability Team Structure

The preparation of the accountability report at the CBA is carried out by a dedicated team of six members, each with a specific role and responsibility to ensure the comprehensive and effective completion of the report. The team will consist of the following roles:

The accountability team lead is responsible for overseeing the entire accountability report preparation process. This individual ensures that all

sections of the report are developed in line with the established framework, objectives, and timelines. The Team Lead coordinates efforts across the team, provides guidance and support to the team members, resolves issues that arise during the preparation process, and maintains communication with the Board and other departments as needed. As with other “lead” roles in the FPAS Mark II human capital framework at the CBA, the “lead” is merely a coordinator, rather than a hierarchical boss.

Board Coordinator serves as the key liaison between the Accountability Team and the CBA Board, so that the Board’s feedback and insights are incorporated into the report and that the final document aligns with the Board’s expectations. The Board Coordinator also ensures the timely flow of information between the Board and the Accountability Team, facilitates the approval process, and helps integrate any adjustments or directions from the Board into the final report.

Team Members: The remaining four team members, together with the team lead and board coordinator, will collectively be responsible for preparing the analysis and drafting sections of the Accountability Report and other supporting documents.

Processes and Work Flow

The preparation of the CBA’s Monetary Policy Accountability Report (MPAR) involves a systematic and structured workflow that is intended to be collaborative and iterative, and to result in greater efficiencies from a resource allocation and time perspective. This multi-step process relies on close coordination between the Accountability Team and the CBA Board. The timeline outlined below serves as a general framework for the report’s preparation; however, it is important to emphasize that the process is adaptable and subject to adjustments as necessary.

TABLE C.3
Timeline for the Preparation of the Accountability Report

	Initial Planning and Coordination:	This stage involves selecting the team responsible for preparing the report, assigning roles, and establishing a detailed timeline for the report's development.
T-40	Kick-off Meeting	The Accountability Team meets with the CBA Board to align on the report's objectives, structure, and timeline, ensuring that the Board's expectations and institutional priorities are reflected.
	Analysis & Drafting	The Accountability Team conducts a comprehensive analysis of past monetary policy decisions, economic developments, and external factors, followed by drafting the report.
T-10	Feedback-Sharing	Once the initial draft is completed, the Board reviews and provides feedback to ensure the report aligns with their strategic priorities and accurately reflects the economic context of the past year.
T-3	Final edits	A final review and refinement of the report occur, addressing any outstanding issues from the Board's feedback.
T	Final meeting & publication	On the day of publication, the final draft is presented to the Board for approval, ensuring it accurately reflects the strategic priorities and is cleared for dissemination in both Armenian and English.

Initial Planning and Coordination: The process begins with initial planning and coordination within the Monetary Policy Department (MPD). During this session, the team responsible for preparing the accountability report is selected (based on personal development objectives and team planning for the year), and specific roles are assigned to each team member. This meeting also serves as an opportunity for initial brainstorming on the key elements of the report, including the main focus areas, potential challenges, and mapping out the overall approach to the report's structure and content. A detailed timeline with milestones and review periods is also set at this stage.

Kick-Off Meeting: Following the initial planning and coordination, the process moves to the kick-off meeting, where the Accountability Team

meets with the CBA Board for the first time in relation to the preparation of the report. The main objectives of the kick-off meeting are to:

1. Review the proposed objectives, structure, and timeline for the report to ensure alignment with the Board's goals and institutional priorities. This provides the Board with a platform to give initial guidance and “set the tone” for the report.
2. Serve as a brainstorming session where the Accountability Team and the Board collaboratively identify the major themes, economic issues, and topics/messages that should be highlighted in the report.
 - a. Additionally, during the meeting, the staff presents a number of policy-relevant issues that they believe could be addressed in the “Special Topics” and “Common Questions on the Conduct of Monetary Policy” sections. Based on this presentation and ensuing discussion, the Board decides which topic(s) will be selected for inclusion in the final report.

Analysis and Drafting: Following the Kick-off Meeting, the accountability team moves into the next phase of preparing the Monetary Policy Accountability Report (drafted simultaneously in both Armenian and English, as with other MP documents). This includes analysis of the past monetary policy decisions (over a one-year horizon), careful review of the rationale behind each decision (using Board minutes, final submissions, and press releases as a basis), as well as an in-depth analysis of the economic developments that influenced those decisions (which are summarized in each of the four monetary policy reports and eight executive monetary policy statements). The team assesses how the policies were designed to address key economic issues, while also considering the risks, uncertainties and important trade-offs policymakers deemed significant at the time. Further, the team constructs an annual taxonomy of scenarios, which provides a comprehensive rollup of the different policy-relevant risks and uncertainties that the Board, staff, market participants, and others considered to be policy-relevant throughout the

year. If there are specific findings, analyses, or issues that the accountability team wishes to share with the Board, the weekly monitoring meetings provide an effective platform to present those insights during the drafting period.

Feedback Sharing: Once the initial draft of the Monetary Policy Accountability Report is completed, the accountability team shares it with the Board for their review and feedback. The review period spans one week, allowing the Board sufficient time to thoroughly review the draft. The Board's input ensures that the report accurately reflects their strategic priorities and adequately addresses relevant economic developments, risks, and uncertainties encountered. This process underscores the Board's ownership of the document and its critical role in finalizing its content to ensure alignment with institutional objectives. At the same time, to ensure workflow efficiency, no substantive edits (pertaining to significant changes in content, structure, scope, etc.) will be accepted after this period.

Final Edits (one week before publication): In the final stage, the accountability team edits and refines the document as appropriate in order to address the comments raised during the Board's review. This final editing process occurs one week prior to the planned publication date. During this period, the team focuses on refining the language and formatting, and doing final checks for quality control. Once the final edits are completed, the report is ready for final approval by the Board and preparation for publication.

Final Meeting on the Accountability Report: Three working days before publication, the final version of the Monetary Policy Accountability Report (MPAR) is presented to the CBA Board for formal approval. At this stage, the report has undergone all necessary revisions and edits. The Board reviews the final document one last time to confirm that it fully reflects the strategic priorities, economic analysis, and policy decisions discussed throughout the preparation process. Once the Board has given their approval, the report is officially cleared for dissemination on publication day.

Publication of the Accountability Report: The Accountability Report is published according to the schedule outlined in Section V. It is simultaneously published in both Armenian and English, on the CBA's website and distributed through appropriate channels to ensure that it reaches all relevant audiences, including policymakers, the media, economic analysts, and the general public. Additionally, the Accountability Report forms the core of the package presented annually to Parliament, thereby ensuring the Board's public accountability to elected representatives. Additional communications tools, as discussed in Section V, complement the report's publication.

| REPORTING STANDARDS

Maintaining Consistency across Reports

To maintain continuity and consistency in the accountability reports over time, this handbook lays out clear guidelines and standardized processes for preparing each report. The accountability team must ensure that each report reflects the same high standards of transparency, clarity, and alignment with the CBA's strategic goals, regardless of which team is responsible for its preparation. Moreover, strong institutional capacities and codified knowledge—that go beyond individual teams or persons—is an important foundation for guaranteeing consistent quality in reports over time. The following section therefore introduces important procedures and mechanisms for ensuring that knowledge and lessons learned are effectively transferred from team to team each year, and that this information is readily accessible to all relevant parties. The key measures for ensuring consistency are described below.

- **Internal Processes, Communication & Quality Control:** Each accountability report should be prepared following a similar internal process and workflow. These workflows, including internal processes, internal communications, and mechanisms for quality control, are defined in Section II.

- **Standardized Reporting Framework and Contents:** A standardized structure for the accountability report is presented in Section III. This structure defines the key sections, topics, and elements that must be addressed in each report, ensuring that the same general content is covered consistently across reports. Standardized format and presentation styles, including templates for data presentation, analysis, and summary sections, are important for ensuring consistent reporting and communication standards each year. While the specific economic issues and risks that were relevant for policy will undoubtedly differ from year to year, each accountability report should nonetheless seek to answer the same general set of questions that are necessary to promote policy accountability. The handbook, in Section III, therefore covers the specific objectives of the report, the key questions that must be answered, and broad approaches for answering these questions that are consistent with analytical standards under FPAS Mark II.
- **Analytical, Drafting, and Presentation Standards:** Further, accountability reports should adhere to a well-defined set of standards related to charts, language, data analysis, presentation materials, and so on. This is discussed further in this chapter.
- **Archival Documentation:** Finally, this handbook emphasizes the need to establish an internal archive containing all relevant working files for each accountability report, as well as a record of best practices, lessons learned, and common challenges, which should be accessible for each team. This allows each incoming team to benefit from past experiences and promote a continuous improvement in quality over time, while also enhancing broader institutional capacities.

Analytical, Drafting, and Presentation Standards

These technical requirements are designed to enhance the quality of the report and ensure consistency across all reports.

Alignment with MPD Design Standards

The accountability report must align with the design standards used in other key documents produced by the CBA generally and the Monetary Policy Department specifically, including the Monetary Policy Report and the Transparency Report. The report should adhere to the same visual identity guidelines used in MPD documents, including the appropriate use of color schemes, typography, logo placement, and overall page design. These formatting and presentation standards are at the discretion of the CBA communications department; the accountability team should continuously check in with the communications staff to ensure it is adhering to the most up-to-date formatting styles and guidelines.

Proper Referencing of Data Sources and Related Documents

All data, statistics, and external information used in the accountability report must be properly referenced. Each data source should be clearly cited in the appropriate section of the report, following a consistent referencing style aligned with standards in the Monetary Policy Report and other MPD documents and presentations (e.g., Source: Statistical Committee of RA). References should include full details such as the name of the source, publication date, and, where applicable, links or citations to original documents, databases, or reports.

Further, the accountability report should include clear references and links to relevant monetary policy-related documents, research papers, and reports. For sections like “Special Topics” or “Addressing Common Questions on the Conduct of Monetary Policy,” relevant external resources, previous reports, or studies should be linked. These links should be properly cited and accessible, ensuring that readers can easily follow up on related materials for further exploration or clarification of the discussed topics.

Clear, Succinct, and Readable Charts

Any charts, graphs, or visual data representations in the accountability report should be designed for clarity and ease of understanding, follow-

ing “BoB” standards and principles for reporting in the MPR.⁹¹ Charts should not be overloaded with excessive data or feel the need to tell every possible narrative. Instead, they should focus on conveying one key message or insight succinctly. Each visual element should be well-labeled with appropriate titles, axis labels, and legends. The design should prioritize simplicity, highlighting the most important trends or findings, such that the key message is immediately recognizable to a reasonably informed reader.

Language and Terminology

The report should be written in high-quality, professional economics language, which is able to explain complex ideas in clear, simple, and accessible language, consistent with standards for other MPD documents. Considering that one of the purposes of the Accountability Report is to ensure that policy actions are well-understood by key stakeholders, effort should be made to ensure that the language of the report itself is understandable and accessible.

Additionally, the report should maintain consistent terminology throughout, particularly in reference to monetary policy, economic indicators, and technical terms (e.g. output gap vs. GDP gap, Y-o-Y vs. annual, etc.), consistent with broader CBA standards.

Appendices and Supplementary Materials

Where appropriate, reports should provide appendices or supplementary materials (such as detailed data tables or supplementary research) for those who may require deeper technical insight, without overloading the main sections of the report. This is similar to the logic of the MPR, where the main body of the report is relatively succinct, but additional materials (e.g. Chart Pack, excel files, etc.) can provide greater detail for those interested in it.

⁹¹ The inspiration for “BoB” standards, or Best-of-the-Best standards, stems from feedback provided by Robert Ford, formerly of the IMF and OECD, whose collaboration with Douglas Laxton and the CBA MPD team has added meaningful value to the analytical quality and presentation value of CBA output.

Specifically, a supplementary Excel file containing all relevant data series used in the creation of charts, graphs, and tables will be published alongside the accountability report. The Excel file should be clearly structured, with labeled sheets, clear column headers, and appropriate documentation or notes explaining the data sources and methodologies used in the compilation. Links to the supplementary Excel file should be prominently included within the report, particularly in sections where data-heavy charts or tables are presented, allowing for easy access.

Archival Documentation

To ensure the continuity and improvement of the accountability reporting process, it is essential to establish a robust internal archive that systematically stores all relevant working files, reports, and supplementary materials. This archive serves as a comprehensive repository of historical records, ensuring that each incoming team has access to the full range of previous reports, methodologies, and analytical frameworks used in prior cycles. The archive should be structured in a way that allows for easy retrieval of documents and insights, so that there is a seamless transition between teams that contributes to enhanced codified institutional knowledge. Moreover, this archive should include detailed records of lessons learned, challenges encountered, and successful practices that have been identified through past report preparation.

| Communications Strategy & Tools

As discussed in Papikyan, Avagyan, Avetisyan (2025), without an active effort by the central bank to engage with the public and share the findings from the reports, accountability reports tend to devolve into mere “box-ticking” exercises. Having a systematic strategy for external communications and public relations can help ensure that accountability reports are effectively communicated to all relevant stakeholders and help

foster a productive and well-informed public dialogue around monetary policy. Moreover, such a strategy should align with the CBA's vision for having the highest standards for transparency and communications, as outlined in the CBA's monetary policy communications strategy.⁹²

This section describes the strategy and toolkit for effectively communicating the CBA Monetary Policy Accountability Report.

Press Release

The publication of the accountability report should be accompanied by a press release, announcing the objectives and findings of the report in a clear and succinct manner. This will help engage members of the traditional media, who play an important role in disseminating this information to the broader public.

The press release should be a very brief, one-page document that communicates to members of the media that the accountability report has been published. It should briefly describe the purpose of the accountability report, its contents, the period it covers, and other similar details. Most importantly, it should inform readers of the dedicated page on the CBA website where the report has been published.

The presentation of the Accountability Report to Parliament should be included as an integral part of the institution's communication tools, as it plays a key role in ensuring transparency and reinforcing the Board's accountability to elected representatives.

Dedicated Page on CBA Website

A dedicated page on the Central Bank website should serve as a centralized hub for accountability reports. The webpage should provide information about the purpose and objectives of accountability reports,

⁹² Refer to "Central Bank of Armenia Monetary Policy Communications Framework" (2024):

transparent insight into how and by whom they are compiled, and offer easy access to all previous reports. This aligns with broader institutional goals of promoting greater economic proficiency, and special topics and other information from accountability reports should be discussed, where appropriate, in short articles published on this page.

Social Media

In addition to legacy media and the website, the CBA should leverage its social media platforms to reach a broad audience and promote greater public dialogue around policy accountability. This could include the CBA's existing social media platforms, including Facebook, X, LinkedIn, and others.

Timeline for Report Publication & External Communications

The publication of the accountability report and complementary materials/events should follow a well-defined timeline, summarized below:

- At 12:00 PM, the press release, alongside the Accountability report, will be published on the CBA website.

In addition to the accountability report, other relevant documents, such as the Graphs, Tables containing the data used in the report, will also be published on the CBA website.

Announcements on the CBA's social media platforms should be made concurrently with the report's publication to ensure broader outreach and engagement.

All documents should be published concurrently in English and Armenian, following the CBA MPD's standard communications practices.

Other Ad-Hoc Communications Tools

In addition, when appropriate, the PR Service may find it appropriate to schedule media interview(s) with member(s) of the Board, in order to publicize the report, clarify any open questions, and reinforce the Board's commitment to accountability and price stability. Importantly, Board members should only represent the official, institutional view of the CBA (as outlined in the Accountability Report), and refrain from making personal judgments that may differ from this view.

APPENDIX D. Monetary Policy

Department Staff Certification Levels

Level 0/ Level 0e		
Assessment criteria	1	Level 0: Analyzes the existing data, proposes and tests relevant narratives for current economic drivers.
	2	Level 0: Develops necessary analytical (statistical, econometric, modeling) tools for current economic analysis.
	3	Level 0: Demonstrates firm understanding of the macroeconomic and microeconomic developments and the functioning of the economy.
	4	Level 0: Produces analytical and policy notes (MPR sections) that are well structured and fluently delivers the key messages.
	5	Level 0: Produces well-structured presentations that include informative and appealing narratives to clearly convey the main messages and attract the audience.
	6	Level 0: Produces informative high-standards charts/ graphs to complement the texts and presentations.
Time to progress		1.0+0.5 years
Writing materials		10 policy or analytical notes (3-7 pages); and/or Sections of MPR; and/or 1 Working Paper (20-25 pages) (could be coauthored)
Presentations		10 presentations, and/or sections of MP presentations (5-10 slides)
Interview questions/ videos		10 video-recorded Q&A sessions from different meetings
Prod. rounds		-

Level 1		
Assessment criteria	1	Motivates, calibrates and analyzes macro-economic scenarios using semi-structural or structural models.
	2	Tells well-designed economic and policy-relevant stories complemented with necessary simulations.
	3	Demonstrates firm understanding of the core underpinnings and key challenges of the monetary and economic policy in Armenia (and globally).
	4	Delivers the key messages to the audience, attracts the attention and effectively interacts with the audience.
	5	Communicates with easy language and motivates listening and parallel thinking.
Time required to progress		1.0+0.5 years
Writing materials		10 policy or analytical notes (3-7 pages); and/or Sections of MPR; and/or 1 Working Paper (20-25 pages) (could be coauthored)
Presentations		10 presentations, and/or sections of MP presentations (5-10 slides)
Interview questions/videos		10 video-recorded Q&A sessions from different meetings
Production rounds		-

Level 2		
Assessment criteria	1	Motivates the economic and policy relevance of a study/research (prepares research proposal);
	2	Conducts a policy research using (mastering) research methods and techniques relevant for the topic and the type of analysis.
	3	Can produce a full Monetary policy report without supervision.
	4	Produces research/working papers that satisfy to the CBA or international research standards
	5	Explains complex ideas in an intuitive way to engage and motivate a constructive discussion with policy-makers.
Time required to progress		1.0+0.5 years
Writing materials		10 policy or analytical notes (3-7 pages); and/or Sections of MPR; and/or 1 Working Paper (20-25 pages) (could be coauthored)
Presentations		10 presentations, and/or sections of MP presentations (5-10 slides)
Interview questions/videos		10 video-recorded Q&A sessions from different meetings
Production rounds		At least 1 Production Round

Level 3		
Assessment criteria	1	Designs, simulates and estimates macro/ micro-economic models.
	2	Designs technical tools and frameworks for macroeconomic analysis.
	3	Acts as a panelist or speaker in a policy or academic conference or in a public interview, while demonstrating advanced communication skills
	4	Motivates and provides guidance to junior colleagues.
	5	Designs training programs and prepares training materials to cover the essential aspects of the topic.
	6	Demonstrates lecturing/training skills, communicates with easy language, motivates self-learning and provides guidance about the required literature.
Time required to progress		1.0+0.5 years
Writing materials		5 policy or analytical notes (3-7 pages); and Editing 1 full MPR; and 1 Working Paper (20-25 pages)/Technical Notes
Presentations		5 full presentation; and/or 5 meetings with different analysts (presentations and Q&A)
Interview questions/videos		10 video-recorded Q&A sessions; and/or 5 short public interviews
Production rounds		At least 1 Production Round or Coordinating 1 round

Level 4		
Assessment criteria	1	Motivates and inspires people for action and collaboration.
	2	Builds working relationships in the team.
	3	Takes an initiative and can lead or manage full development projects.
	4	Sets and communicates clear plans, provides constructive feedback, recognizes achievements and addresses areas for improvement.
Time required to progress		2.0+0.5 years
Writing materials		2-3 policy notes (3-7 pages); and 1 Working Paper/Technical Notes; and/or 2-3 WP editing
Presentations		5 full presentation (teaching materials); and/or 10 meetings with different analysts (presentations and Q&A)
Interview questions/videos		2-3 extended public interviews
Production rounds		Coordinating 1 round or Leading 1 team

Levels 5 & 6		
Assessment criteria	1	Can negotiate and motivate research collaboration.
	2	Envisions the big picture of an organization and can clearly communicate it to the team.
	3	Leads framework-development initiatives in an institution.
	4	Is invited to provide consultation to different institutions on macroeconomic policy and related frameworks.
Time required to progress		2.0+0.5 years
Writing materials		2-3 policy notes (3-7 pages); and 1 Working Paper/ full TA Report; and/ or 2-3 WP editing
Presentations		5 full presentation; and/or 15 meetings with different analysts (presentations and Q&A)
Interview questions/videos		2-3 extended public interviews
Production rounds		Coordinating 1 round or Leading 1 team

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“Drawing on the Central Bank of Armenia’s experience, this book sets out a practical, policy-oriented framework to enhance the resilience, transparency, and credibility of monetary policy in an uncertain world. It will be of particular value to central bank policymakers seeking practical guidance for making robust, credible decisions in an increasingly uncertain and shock-prone environment.”

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International Monetary Fund

“I must admit I was skeptical at first, especially given the ambitious standards being pursued. But the experience has been strikingly positive. By combining a dynamic learning environment with exceptionally high professional standards, the team has unlocked major productivity gains while building a work culture based on sustainable hours and genuine work-life balance. This has more than doubled the effective pool of talent and has attracted a diverse team—predominantly women—marking a sharp and welcome contrast with earlier generations of forecasting and policy analysis systems. These features give me confidence that this approach is not only innovative, but sustainable.”

Robert Ford, former Deputy Director, OECD