CENTRAL BANKING AMID SHOCKS AND UNCERTAINTY IN DEVELOPING ECONOMIES

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Abstract: *The article looks at modern policy challenges faced by typical central banks small, open, developing economies that don't rely on resource exports, integrating Republic of Moldova as a representative case. These countries often operate under a complex set of typical structural weaknesses, such as ongoing current account deficits, a high degree of currency substitution, and fiscal constraints. The study relies on a qualitative approach to analyse the role and how a central bank, operating under an inflation-targeting regime, could develop its approach to capturing and responding to external shocks and conjunctural uncertainty.*
The analysis integrates synthesis of insights from economic evolution and historic evidence, highlighting the structural amplification of uncertainty through forces such as trade hyperglobalisation, climate-related shocks, demographic shifts, and more recent - de-globalisation. The study tries to bridge theoretical observations from economic uncertainty knowledge with real-world structural issues including questioning the heavy dependence on purely quantifiable risk models and argues for a broader, more flexible, conceptualisation of uncertainty. It also assesses the limitations of traditional monetary policy in highly externally -dependent settings, underlining the growing importance of adaptive strategies.
The findings suggest that inflation-targeting regimes in developing economies in today's environments need to evolve to account for broader horizons and multidimensional vulnerabilities. A strategic, longer-term orientation, effective coherent communication under uncertainty, institutional consolidation, and coordinated deployment of monetary, macroprudential, and foreign exchange instruments, as well as interplay with other state policies, emerge as essential pillars of resilient monetary governance. The paper concludes that a pragmatic, credibility-focused, and flexible approach – grounded in context-specific realities – is necessary for monetary authorities aiming to maintain macro-economic and macro-financial stability amid XXI century uncertainty.

Keywords: *External shocks, Monetary policy; Shocks; Uncertainty; Small open economy; Moldova; Developing economies*

JEL Codes: E52; E58; O23

1. Introduction

The present paper looks at modern policy challenges faced by typical inflation-targeting central banks from small open non-resource exporting developing economies. Such economies typically exhibit a set of similar and historic macroeconomic imbalances, including a relatively high degree of currency substitution, significant current account deficits, constrained fiscal space, limited coordination between fiscal and monetary policies, significant social and demographic challenges, heightened susceptibility to external shocks, and structural reliance on external financial assistance.
The macroeconomic and macrofinancial uncertainties at both national and international levels are not analysed by their origins or nature, nor does it extend outside of monetary policy context. Rather, these uncertainties are treated as external realities encountered and to be managed by central banks functioning in such economies. A young eastern European market economy, Moldova exemplifies the complex policy dilemmas faced by those economies. Specifically, the National Bank of Moldova (NBM), guided primarily by a forward-looking inflation-targeting framework, continually adapts to balance responses to domestic risks and inflationary pressures beyond its immediate control. The energy crisis triggered by the disruptions in Russian gas supplies, alongside ongoing geopolitical

instability, climate-induced issue, and anticipated fiscal policy changes following upcoming elections, exemplifies clearly such external pressures. Even though an economic recovery is anticipated in the coming years, Moldova's GDP growth in 2024 stagnated at only 0.1%, highlighting the inherent constraints within an economic structure heavily reliant on consumption and investment. At the same time, net exports remain consistently negative, influenced by agricultural uncertainties and interruptions to established routes, notably with neighbourhood.

While external macrofinancial assistance provides a solid buffer, it cannot provide complete insulation against these external shocks, leaving to the monetary policy the role of primary stabiliser in an environment of heightened uncertainty. After a period of relative stability, price pressures re-emerged in late 2024, with annual inflation accelerating from 3.3% in May to 8.75% by March 2025 (NBM, 2025) – well above the NBM's target variation interval. Moreover, rapid expansion in real estate lending has fuelled property price inflation, demanding closer macroprudential oversight. This resurgence underlines the challenges of maintaining price stability in an economy acutely sensitive to imported inflation, exchange rate pass-through, and supply-side shocks. In these conditions, the currency stability currently is supported by robust foreign exchange reserves and international liquidity injections, providing temporary relief. In the same time the formal adoption of the euro as the official reference currency in January 2025 signals deeper structural integration with EU financial markets, this relationship simultaneously promises a stability contribution, but also exposure to eurozone various market spillovers. The country's current negative net international investment position (−5.6 billion) and elevated gross external debt of USD 10.2 billion constituting 56.1 % of GDP (NBM, 2025) highlight the underlying fragility of an economic model reliant on external financing.

The monetary policy agility has been tested under the recent economic disturbances, many of them reinforcing one the another, such as Covid-19 global sanitary crisis, energy products price volatility, episodes of exchange rate pressures, and the pro-cyclicality of remittance flows. For inflation-targeting regimes like Moldova's, macroeconomic intersecting challenges calls for raising questions about the feasibility to explore possibilities for further policy development in view of external shocks which dominate inflation dynamics. Moving forward, the central bank's credibility depends not only on its technical capacity to forecast and react to inflation but also on its ability to communicate the limits of monetary policy considering its particular features and the nature of incoming shocks. In an established regime, it necessitates a more nuanced policy framework – one that integrates inflation targeting with explicit recognition of external sector vulnerabilities, and the growing imperative of sustainable macroeconomic resilience without conflict between the policy instruments in the context of regime prescriptions. The alternative is a perpetual cycle of policy reactions, sometimes discretional ones, addressing imbalances whose origins lie outside country's monetary jurisdiction.

Uncertainty as a Policy Parameter

Monetary authorities, by their very nature, operate in an environment where uncertainty is not an extraordinary circumstance but a permanent element in policymaking. Unlike private actors, who can diversify, insure or hedge against risks, monetary authorities issue responsible decisions in the most cases in advance, in conditions of incomplete information, structural unpredictability, and quite often also under crisis conditions. The crises in the past two decades proved that uncertainty is not a marginal concern but the core challenge of modern macroeconomics. Monetary and financial policymakers cannot rely on the "feeling" of controllability and instead try building adaptive systems – buffers unknowns and automatic stabilisers. The quality of macroeconomic may improve acknowledging uncertainty not as a flaw to be eliminated, but as the defining feature of economic life. This reality is particularly acute in developing economies, where institutional weaknesses, external vulnerabilities, transmission challenges and volatile political economies amplify uncertainty. In the past two decades monetary authorities apply data-driven policy decision making, from the perspective of uncertainty, the evolution of macroeconomic analysis and forecasting frameworks

reveals an empirical tension: the struggle between quantifiable models and unquantifiable reality. But what is uncertainty and how do central banks perceive it? A common source of uncertainty (Hansen, 2022) is risk, where risk refers to situations where outcomes are unknown but probabilities are known – a measurable uncertainty.

Macroeconomist analysts and planners attempt to "manufacture" certainty relaying on probabilistic risk models, but the latter neglect deeper structural uncertainties that drive crises and totally unpredictable shocks. Shocks (e.g. monetary, supply, or geopolitical) are realisations that reveal or exacerbate uncertainty. A shock may convert unknown unknowns into known risks – or vice versa, by amplifying ambiguity.

Fundamentals define uncertainty (Knightian) as situation where probabilities are unknown or unknowable. This is assumed to be a true uncertainty, often associated with structural shifts or rare events. Knight's framework, assumes a static dichotomy between measurable and immeasurable uncertainty. An intuitive and subsequent conclusion hear makes it clear that macroeconomic stability requires tools beyond stochastic modelling, incorporating wider multidimensional perspectives and strong expert judgement.

However, before treating a disease, one must first accurately establish the correct diagnosis. Focusing strictly on known measures of uncertainty, advanced economies, notably the United States, employ specific indexes designed to quantify economic uncertainty. One prominent example is *VIX* – the CBOE Volatility Index, commonly known as the "fear gauge," which measures market expectations regarding near-term volatility implied by Standard & Poor's 500 index option prices. Such index would be difficult to calculate and it possibly be less relevant in developing economies or emerging market economies, especially those with limited depth of capital markets.

Another recognised measure is the *Global Economic Policy Uncertainty Index*[1], calculated as a gross domestic product-weighted average of national Economic Policy Uncertainty indices from 21 countries, has been released monthly, covering the period from January 1997 to the present. The recent evolution of this index on a global level, reveals an unprecedented surge in uncertainty. Specifically, the index, historically stable with modest fluctuations around major event, has experienced a dramatic escalation beginning in February 2020 with 281.21 and culminating in an all-time peak 548.89 points by February 2025 (EPU, 2025). This sharp spike clearly illustrates the acute intensification of policy-related uncertainty currently confronting global markets. Necessary to mention, the index capture a very limited number of developing economies. However, in the past decades it can be witnessed a better policy harmonisation coordination between countries for different reasons.

Additionally, the *Purchasing Managers Index (PMI),* although not explicitly designed as an uncertainty measure, provides valuable indirect insight, as fluctuations in its readings can reflect or correlate with uncertainty under certain conditions and reflect the market sentiment. The PMI highlights monthly supply and demand trends within sectors such as manufacturing and services.

Nonetheless, for measuring actual uncertainty, dedicated indexes or model-based measures – for example, forecast *dispersion or structural vector autoregression residuals* – are preferable. Similarly, the *dispersion observed in survey-based forecasts* can serve as a more universally applicable measure of uncertainty, reflecting the range of views and disagreements among economic forecasters.

For the developing economies, however, the existing literature lacks such widely recognised and systematically calculated metrics, which apart from relevance for the type of economy, is partially supported by various issues generally concerning data availability, quality, and granularity. The next section will seek to define explicitly the processes, forces, or phenomena that exacerbate uncertainty within these economies.

[1] Economic Policy Uncertainty. (n.d.). *Economic policy uncertainty index*.

Structural Drivers of Uncertainty

Subramanian and Kessler (2013), in their influential analysis, characterise the current era of global economic integration as "hyperglobalisation," which emerged prominently in the early 1990s. This period has been distinguished by rapid acceleration in international trade agreements, trade flows and foreign direct investment. Significant drivers therefor, were policy liberalisation and substantial advancements in technology, notably in transportation and logistics sectors. Authors date the start of this phase of hyperglobalisation from the intensification of the liberalisation trends initiated in the post–World War II era, originally initiated by advanced economies under the General Agreement on Tariffs and Trade framework and subsequently adopted by developing countries through unilateral liberalisation and participation in international economic programs. The result has been a historically unprecedented deepening of global trade integration.

A notable structural characteristic of the stage, as was identified by authors, is the fragmentation of global production chains, contributing to export statistics, thereby inflating gross trade volumes in comparison to actual value-added flows. Being fuelled by multinational enterprises and cross-border capital movements, this fact triggers significant implications for economic policymakers. For instance, with relevance for the central banks, the exposure to global volatility and the transmission of monetary policy is further complicated, especially in small open developing economies, where trade is one of economy's main building blocks.

Subramanian and Kessler (2013) emphasise the idea of "democratic globalisation," based on observations about how trade growth among lower- and middle-income economies has exceeded their income growth rates, and the growth rates of higher-income countries. Increasingly, trade expansion is concentrated within the developing world itself, reorganising "traditional" global trade patterns and broadening the spectrum of interdependence. Any change needs adaptation, and such a reconfiguration adds further complexity for developing economies' central banking through exposure to more complex cross-border economic interdependencies and greater uncertainty in trade-related shocks, currency fluctuations, and capital flows shifts.

Authors stress, that the sustainability of this hyperglobalised order is also being tested by the global imperative to mitigate climate change. Indeed, the intersection between climate policy and macroeconomic stability introduces a new horizon of uncertainty for central banks, particularly those in developing world. Integrating climate risks into existing macroeconomic policy analysis and forecast frameworks and monetary strategy is a challenging task, owing to the fragmented and often uncertain nature of climate-related data and its macroeconomic implications.

Former Deutsche Bundesbank's President and chairman of the Bank of International Settlements board, the Economist, Jens Weidmann (2022) defines critical structural changes – decarbonisation, digital transformation, demographic shifts, and de-globalisation – that significantly amplify uncertainty and pose new challenges for central banks in today's settings. In 2022 Weidmann (2022) stressed that decarbonisation initiatives, primarily through climate policies, could raise annual inflation by 0.3 to 1.1 percentage points on average until 2030 due to higher transition costs and carbon pricing mechanisms. Digital transformation has a dual inflationary profile. On one hand, it can foster productivity gains and market efficiencies, with the European Central Bank estimating a 0.1 percentage point annual reduction in non-energy industrial goods inflation since 2003. On the other, it can lead to market concentration, undermining competition and trigger inflationary effects.

Demographic transitions, particularly ageing populations and increased migration, further complicate inflation modelling. According to Heller (2006) and Weidmann (2022), these trends could reverse previously dominant disinflationary pressures by tightening labour markets, shifting consumption patterns, altering productivity growth, and influencing pension investment flows. These demographic impacts differ across advanced and developing economies, requiring central banks in developing regions to explicitly incorporate distinct demographic realities into policy frameworks. Finally, a more recent addition to global shifts evolution trend adding to uncertainty is de-globalisation

(Weidmann (2022)), characterised by rising protectionism and a retreat from integrated value chains – risks weakening the deflationary impact of international trade, driving up domestic prices and intensifying volatility in wage and cost structures.

Complementing the perspectives enumerated above, Daniel Dăianu (2015), presenting a Romanian view, clearly and precisely emphasises that central banks in uncertain environments confront additional systemic dilemmas. He notes that oversized financial sectors can exhibit destabilising characteristics even under sound regulatory and supervisory frameworks.

This is often the case of developing economies, which participate in various reform programs, for example Moldova's regulatory and supervisory framework transposes EU norms and keeps aligned with the best recognised international standards, for example such as Basel recommendations. Further, Dăianu (2015) stresses, that achieving price stability alone in not enough for securing broader economic stability, particularly in the presence of rising macrofinancial complexity.

In recent years it became more prominent that central banks frequently operate under multiple and at times conflicting mandates – such as controlling inflation, supporting growth, and ensuring financial stability. Additional trendy currents may include climate policy contribution engagement or socially oriented goals such as dealing with different kind of inequalities. In modern developing economies central bankers often operate within contexts of slowing potential growth due to noticeable demographic shifts, income inequality, and technological disruptions. Finally, the lack of effective international policy coordination further complicates the central bank's role in small, open economies, limiting their capacity to buffer external shocks. These factors necessitate adaptive, coherent, and transparent policy frameworks that go beyond inflation targeting to address multidimensional instability and external fragility in developing economies.

Historical precedent further reinforces the central bank's foundational role in crisis management, the Bank of England was established in XVII century during the aftermath of a sovereign debt crisis, while the Federal Reserve was created to confront recurring economic turmoil in the United States during the late XIX and early XX centuries, the European Central Bank was established alongside the euro to shield the Single Market from the risks of exchange rate instability and competitive devaluations (Draghi, 2019); thus, in its first decade, the euro area experienced a period of relative macroeconomic stability, however, followed by a decade marked by financial and sovereign debt crises.

Moldova's central bank, the NBM, was born out of a similar necessity. Established in 1991 following the dissolution of the Soviet Union, the NBM assumed the control and the responsibility for currency issuance and monetary policy, building the foundations for Moldova's monetary and financial sovereignty (NBM, 2018). With the support and guidance of the International Monetary Fund, the NBM progressively strengthened its institutional framework by implementing prudential regulation, payment systems modernisation, and steadily reserves' accumulation. For the transition economy, these actions helped to lay the groundwork for macrofinancial stability.

These historical insights underline the central bank's role in anchoring stability, confidence and assuring continuity amid systemic uncertainty, external shocks and transformation. Historical experiences show us that forceful and timely responses to financial stress were effective to stabilise the system and relatively limited the damage to the economy comparing to past crises. The excessive shortfall of inflation from targets always remained relatively contained in the long-term perspective (BIS, 2024). Talking about recent large scale events, following aggressive rounds of policy tightening, inflation trends have shown signs of converging once more toward the intervals of price stability. Meanwhile, economic activity and labour markets have displayed surprising relative resilience. This resilience is no accident. It reflects central banks' capacity as role institutions to react promptly, to deploy a diverse and right array of tools, and also to maintain credibility in the eyes of participants to the economic relations. Looking deeper, the activity of central banks serves not only to safeguard price stability, but also to support the durability of financial systems, insurance of the smooth functioning of credit intermediation, and uphold institutional trust, which are of paramount

importance for further developing of an economy and populations material wellbeing growth.
Thus, in environments increasingly defined by uncertainty, the strategic agility of monetary and financial policymakers remains a central pillar of right economic governance. This is even more important for the developing economies, where uncertainty is magnified by structural fragilities such as narrow fiscal space, external financing dependence, and high exposure to global shocks, the approach to monetary policy should focus on further evolution.
Drawing on the "multipronged strategy" articulated by Heller (2006) for fiscal policymakers, several lessons may be meaningfully extended to the domain of central banking. First, monetary authorities in developing economies should adopt a longer-term orientation, prioritising strategic objectives such as macroeconomic stability and inclusive growth over short-term fluctuations. Second, they should identify specific areas of intervention where monetary instruments can have tangible impact. Third, the development of robust, independent, and transparent institutions is essential to enhance policy credibility and implementation capacity. Finally, cross-sectoral and inter-institutional cooperation should be pursued where it delivers demonstrable national benefits, particularly in contexts characterised by fragmented governance and external dependencies.
In addition to these principles, central banks in developing economies are expected to act with both flexibility and credibility, judiciously balancing rule-based frameworks with discretionary responses to rapidly evolving conditions. In periods of heightened uncertainty, transparent and consistent communication is indispensable for managing expectations and mitigating market volatility. However, in developing economies, the effectiveness of expectations management may be more limited due to structural transmission challenges, institutional constraints, and lower responsiveness of economic agents to forward guidance and signalling. These factors weaken the overall traction of communication as a policy tool, necessitating a complementary reliance on direct instruments and institutional credibility. In any case, monetary authorities should be prepared to utilise the full spectrum of policy tools – including interest rate policy, foreign exchange market operations, macroprudential measures, and forward guidance – in a coherent and context-sensitive manner.
This holistic and adaptive posture, grounded in institutional resilience and policy coherence, is critical for developing economies in managing the persistent and evolving uncertainties of the 21st-century global economy.

Conclusions

This study concludes that central banks in developing economies face a policy environment fundamentally different from that of their advanced economy counterparts, and those differences are further accentuated by the modern major policy challenges and forces influencing the economy. Thus, persistent macroeconomic imbalances, institutional limitations, and structural reliance on external financing amplify the effects of uncertainty, making it an endogenous feature of the monetary regime and policy toolkit.
The analysis highlights that uncertainty in is particularly challenging to be adequately addressed through risk-based stochastic modelling alone. An important issue is the problem of capturing uncertainty in existing models, especially in developing economies`, often encountering general data availability and quality issues.
Deeper structural factors such as demographic shifts, digital transformation, and decarbonisation pose inflationary and financial stability pressures, often outside the control of domestic policymakers. Moreover, de-globalisation and fragmentation of trade relationships further erode the reliability of external anchors and are also difficult to measure and forecast.
In this context, the credibility of central banks is increasingly contingent not only on forecasting precision, but on institutional strength, policy agility, and the ability to exactly acknowledge, communicate and manage policy limitations. To manage these compounded challenges, a comprehensive and resourceful approach is necessary. From the one perspective, a starting point

could be that policymakers move beyond the narrow horizons of shorter-term price stability objectives. Drawing from Heller's (2006) multipronged policy paradigm, the findings advocate for a strategic orientation that is longer-term, institutionally grounded, and context-sensitive.

Monetary authorities in particular should continue to act with flexibility and credibility, deploying a diversified toolkit compatible with current policy settings, or reviewing the latter considering the particular characteristics of the economy and all current circumstances. These actions should continuously be supported by effective communication strategies that improve transmission, manage expectations and increase public trust, especially during times of higher uncertainty.

Looking ahead, future research should pursue three directions. First, there is a need to refine the approach and perhaps empirical measurement of uncertainty in low- and middle-income economies, potentially through the development of regionally adapted metrics that incorporate localised shocks and characteristic institutional fragility. Second, more work is required to design integrated policy frameworks that combine inflation-targeting regimes with financial stability, climate risk and possibly social considerations. Finally, cross-country comparative studies examining how institutional evolution and governance models affect monetary policy outcomes in uncertain environments, would provide evidence-based information which may positively contribute to adaptation and further development.

References

1. Bank for International Settlements (BIS). (2024). M*onetary policy in the 21st century: lessons learned and challenges ahead*. BIS Annual Economic Report 2024. Retrieved May 5, 2025, from https://www.bis.org/publ/arpdf/ar2024e2.pdf
2. Draghi, M. (2019). *Twenty years of the ECB's monetary policy.* ECB Forum on Central Banking, June 2019. Retrieved May 6, 2025, from https://www.ecb.europa.eu/pub/pdf/sintra/ecb.forumcentbank201911~e0dd97f2c0.en.pdf, pp. 26-35
3. Dăianu, D. (2015). "*A Central Bank's Dilemmas in Highly Uncertain Times - A Romanian View*" in Monetary Policy: Selected Works. Bucharest. Curtea Veche Publishing, 2022. ISBN 9786064412638. pp. 183-205
4. Economic Policy Uncertainty. (2025). *Monthly Global Economic Policy Uncertainty Index*. Retrieved May 5, 2025, from https://www.policyuncertainty.com/index.html
5. Economic Policy Uncertainty. (n.d.). *Economic policy uncertainty index*. https://www.policyuncertainty.com/index.html
6. Hansen, L. P. (2022, May 8). Central *Banking Challenges Posed by Uncertain Climate Change*: Speech. BIS Colloquium in honour of Jens Weidmann.
7. Heller, S. (2006). "Inter*nalizing Cross-Border Spillovers: Policy Options for Addressing Long-Term Fiscal Challenges*" in The New Public Finance by Kaul, I., & Conceicao, P., Oxford University Press, NY. ISBN: 019517998. p.133-146
8. National Bank of Moldova (NBM). (2018). *History of NBM*. Retrieved May 11, 2025, from https://www.bnm.md/ro/content/istoria-bnm
9. NBM. (2025, April). *Annual Inflation Rate.* Retrieved May 3, 2025, from https://www.bnm.md/ro/content/rata-inflatiei-0
10. National Bank of Moldova. (2025, March). *External debt of the Republic of Moldova* as of 12/31/2024 (preliminary data). Retrieved May 2, 2025, from https://www.bnm.md/ro/node/68290
11. National Bank of Moldova. (2025, March). *International accounts of the Republic of Moldova* in quarter IV, 2024 (preliminary data). https://www.bnm.md/ro/node/68289
12. Subramanian, A., & Kessler, M. (2013, July). *The Hyperglobalization of Trade and Its Future.* Peterson Institute for International Economics. WP 13-6. Retrieved May 7, 2025, from https://www.piie.com/sites/default/files/publications/wp/wp13-6.pdf, p. 39, 46
13. Weidmann, J. (2022). *A new age of uncertainty? Implications for monetary policy*. Bank for International Settlements. Per Jacobsson Lecture, 26 June 2022. Retrieved May 3, 2025, from https://www.bis.org/events/agm2022/sp220626_lecture.pdf, pp. 5-9