



The Efficacy of Unconventional Monetary Policies during Synchronised Global Interest Rate Hikes

Dr. NANDRU GOPI

Asst. Professor of Economics

SR & BGNR Government Arts and Science College (Autonomous), Khammam, Telangana State

Email: naruna081@gmail.com

Abstract: This paper investigates the performance, transmission mechanisms, and structural efficacy of unconventional monetary policies (UMPs)—specifically Quantitative Easing (QE), Forward Guidance (FG), and targeted liquidity facilities—during the post-pandemic era of synchronized global interest rate hikes. While UMPs were engineered to combat deflationary traps and zero-lower-bound (ZLB) constraints, their residual deployment during a rapid, coordinated global tightening cycle has generated severe policy friction. Utilizing a comparative macroeconomic framework, this study analyzes how spill over effects, bond market distortions, and currency depreciations undermine traditional monetary transmission. The paper identifies a fundamental policy contradiction: the simultaneous deployment of restrictive nominal policy rates and expansionary balance sheet operations creates institutional noise and dampens the efficacy of inflation-targeting regimes. To resolve this friction, this paper proposes a dynamic macro prudential framework, structured balance-sheet normalization scheduling, and formalized cross-border central bank coordination mechanisms to restore monetary policy efficacy without triggering systemic financial instability.

Keywords: Unconventional Monetary Policy; Quantitative Tightening (QT); Central Bank Balance Sheets; Synchronized Rate Hikes; Policy Friction; Financial Dominance; Macroeconomic Spillovers.

1. INTRODUCTION

1.1 Background of the Study

The landscape of global central banking underwent a structural paradigm shift following the 2008 Global Financial Crisis (GFC) and the 2020 COVID-19 pandemic. Faced with the Zero Lower Bound (ZLB) on nominal interest rates, major central banks—including the Federal Reserve, the European Central Bank (ECB), and the Bank of Japan (BOJ)—pivoted toward Unconventional Monetary Policies (UMPs). These interventions primarily comprised Large-Scale Asset Purchases (LSAPs) or Quantitative Easing (QE), qualitative state-dependent Forward Guidance (FG), and Targeted Long-Term Refinancing Operations (TLTROs), successfully injected liquidity into distressed financial ecosystems and suppressed long-term real yields.

However, the rapid re-emergence of global inflationary pressures in the wake of post-pandemic supply chain dislocations, fiscal expansions, and geopolitical conflicts forced a dramatic reversal. Central banks embarked on the most synchronized and aggressive nominal interest rate hiking cycle in four decades. This synchronization creates an unprecedented macroeconomic environment: central banks are attempting to cool aggregate demand through restrictive policy rates while concurrently managing massive residual balance sheets left behind by a decade of hyper-expansionary UMPs.

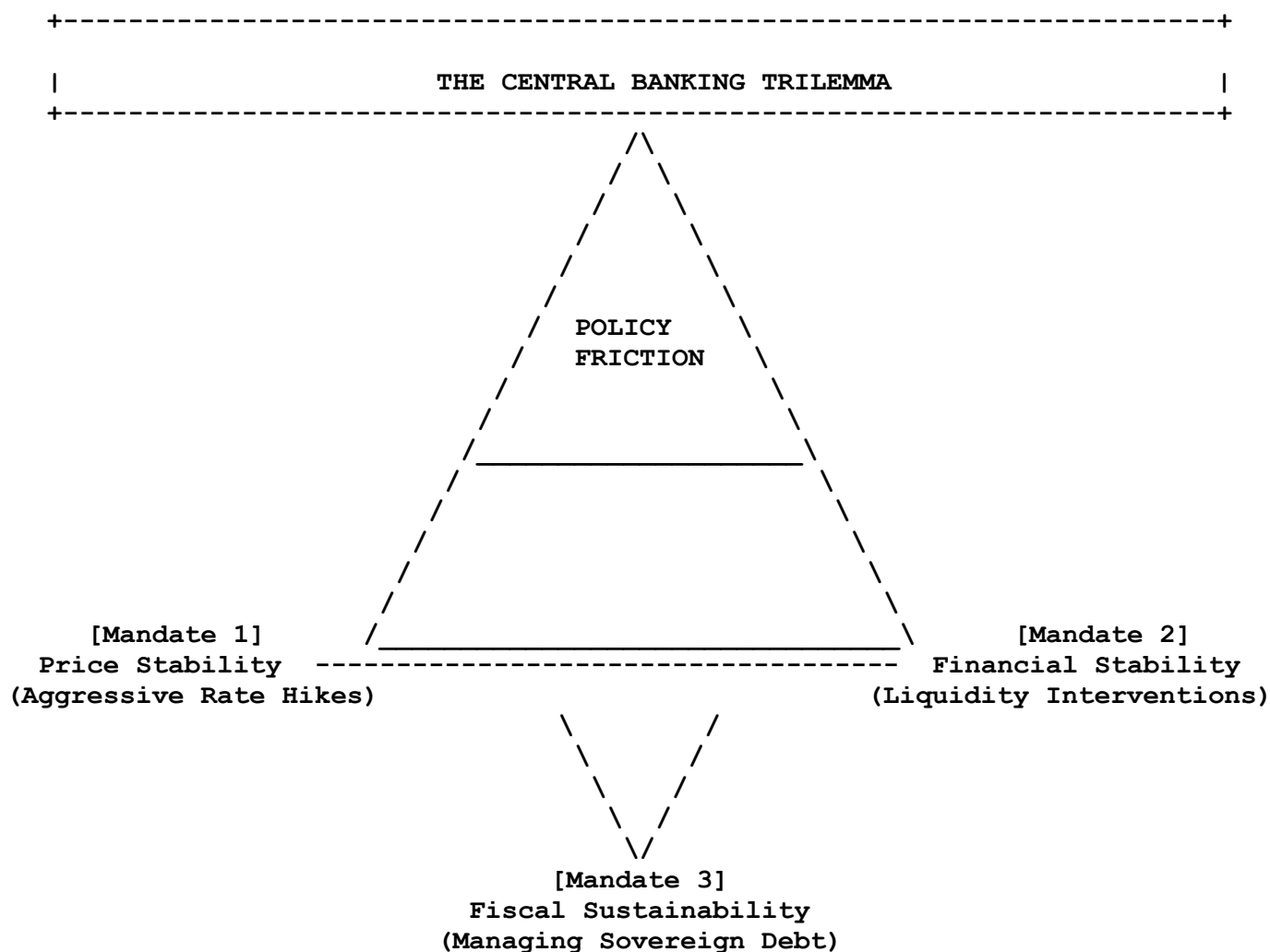
1.2 Research Problem Statement

The co-existence of aggressive nominal policy rate hikes and residual or active unconventional monetary interventions introduces profound policy friction. The traditional transmission channels of monetary policy—namely the interest rate channel, the bank lending channel, and the asset price channel—are distorted when central banks



simultaneously apply the brakes via policy rates and maintain legacy asset holdings or selective market stabilization facilities that act as accelerators.

Furthermore, because this tightening cycle is globally synchronized, the spillover effects are non-linear. Uncoordinated Quantitative Tightening (QT) or uneven unwinding of UMPs creates severe bond market volatility, triggers massive capital flight from emerging markets, and causes sharp currency depreciations against the US dollar. This policy friction severely impairs the efficacy of central banks' core mandate: price stability. Central banks are caught in a trilemma between suppressing stubborn inflation, ensuring financial sector stability, and preventing fiscal dominance driven by escalating sovereign debt-servicing costs.



1.3 Research Objectives: This paper aims to achieve four primary objectives:

1. To evaluate the transmission friction generated by UMPs during a synchronized global interest rate hiking environment.
2. To quantify the macroeconomic spillovers of uncoordinated asset balance-sheet policies on advanced and emerging economies.
3. To diagnose the institutional risks of financial dominance and market distortion arising from prolonged UMP residual footprints.
4. To deliver an actionable framework for aligning conventional and unconventional monetary instruments to maximize policy efficacy and achieve structural price stabilization.



2. Literature Review

2.1 The Foundations and Mechanics of UMPs

The theoretical underpinnings of unconventional monetary tools rely on the portfolio balance channel and the signalling channel (Eggertsson & Woodford, 2003; Krishnamurthy & Vissing-Jorgensen, 2011). By purchasing long-duration sovereign bonds, central banks reduce the supply of these assets available to private investors. This bids up bond prices, lowers long-term yields, and forces investors to reallocate capital into riskier asset classes, thereby easing broader financial conditions.

During deflationary or stagnant environments, these mechanisms performed optimally. Dynamic stochastic general equilibrium (DSGE) modeling historically demonstrated that UMPs successfully prevented deep depression cycles when short-term nominal rates hit the effective lower bound (Gertler & Karadi, 2011).

2.2 The Friction of Synchronized Global Tightening

The contemporary literature highlights a critical gap: standard macroeconomic models did not anticipate the structural behaviour of UMPs during an aggressive, cross-border synchronized tightening cycle. When the Federal Reserve raises rates rapidly, it exports inflation to the rest of the world via the exchange rate channel (Rey, 2013; Obstfeld & Zhou, 2024). This forces other central banks to match rate hikes to protect their currencies, irrespective of domestic output gaps.

Recent studies by Cecchetti et al. (2023) indicate that carrying oversized central bank balance sheets during a rate-hiking cycle alters the risk-taking channel of monetary policy. Commercial banks, flushed with excess reserves created during QE, exhibit a dampened sensitivity to policy rate hikes, which slows down the contractionary transmission necessary to curb inflation.

2.3 Financial Dominance and the Unwinding Dilemma

A growing body of research focuses on the concept of "financial dominance" or "fiscal dominance" in the context of unwinding UMPs (Acharya et al., 2024; Brunnermeier & Reis, 2023). As central banks raise short-term policy rates, they must pay higher interest rates on the excess reserves held by commercial banks. This converts central banks from profitable institutions into loss-making entities, creating significant political economy vulnerabilities and fiscal pressure.

Moreover, as central banks attempt Quantitative Tightening (QT) to shrink their balance sheets, bond markets experience sudden drops in market liquidity. This dynamic was vividly demonstrated during the UK "mini-budget" crisis of 2022, where the Bank of England had to temporarily resume asset purchases to stabilize pension funds while simultaneously trying to hike policy rates to fight inflation (Aizenman et al., 2024). This literature underscores a profound systemic vulnerability: UMPs have created a structural dependency in financial markets that undermines conventional policy tightening.

3. Theoretical Framework and Methodology

3.1 Macroeconomic Transmission Channels under Co-existence

To systematically assess the efficacy of monetary policy during synchronized tightening, we construct an analytical framework tracking the four primary transmission channels when conventional rate hikes and unconventional balance sheets co-exist.

$$\left(\text{Total Policy Stance} = f \left(\Delta R_{\text{policy}}, \Delta BS_{\text{central bank}} \right), \mathbb{E}[\text{Guidance}] \right)$$

Where (R_{policy}) represents the short-term nominal policy rate and $(BS_{\text{central bank}})$ represents the size and composition of the central bank asset portfolio.

1. **The Interest Rate & Term Structure Channel:** Conventional rate hikes drive up the short end of the yield curve. Concurrently, legacy QE asset pools hold down the term premium at the long end of the curve. This leads



to an artificial, severe inversion of the yield curve, which compresses commercial bank net interest margins (NIMs) and alters traditional bank credit supply functions.

2. **The Liquidity and Bank Lending Channel:** Aggressive rate hikes are designed to drain liquidity and discourage credit creation. However, the vast quantity of excess reserves remaining in the banking system from previous UMPs acts as a structural buffer. Commercial banks can draw down these liquid reserves rather than contracting their loan books, which blunts the contractionary intent of the rate hikes.
3. **The Exchange Rate and International Spillover Channel:** In a synchronized global hike environment, the relative velocity of tightening matters. If Central Bank A hikes interest rates but maintains a massive domestic asset purchase program (e.g., the Bank of Japan's yield curve control or the ECB's Transmission Protection Instrument), its currency depreciates sharply against currencies backed by absolute quantitative tightening (e.g., the US Dollar). This imports cost-push inflation via more expensive energy and commodity imports.
4. **The Portfolio Realignment Channel:** As nominal yields rise globally, fixed-income assets reprice rapidly. If a central bank aggressively dumps assets through active QT to match its rate hikes, it risks triggering fire sales, destabilizing institutional non-bank financial intermediaries (NBFIs), and forcing emergency liquidity injections that directly contradict its inflation-fighting mandate.

3.2 Methodology

This study employs a comparative qualitative and empirical synthesis methodology. We track macro-data aggregates across four major advanced economies and economic zones—the Federal Reserve (Fed), the European Central Bank (ECB), the Bank of England (BoE), and the Bank of Japan (BoJ)—along with selected systemic emerging market economies over the primary synchronized tightening window.

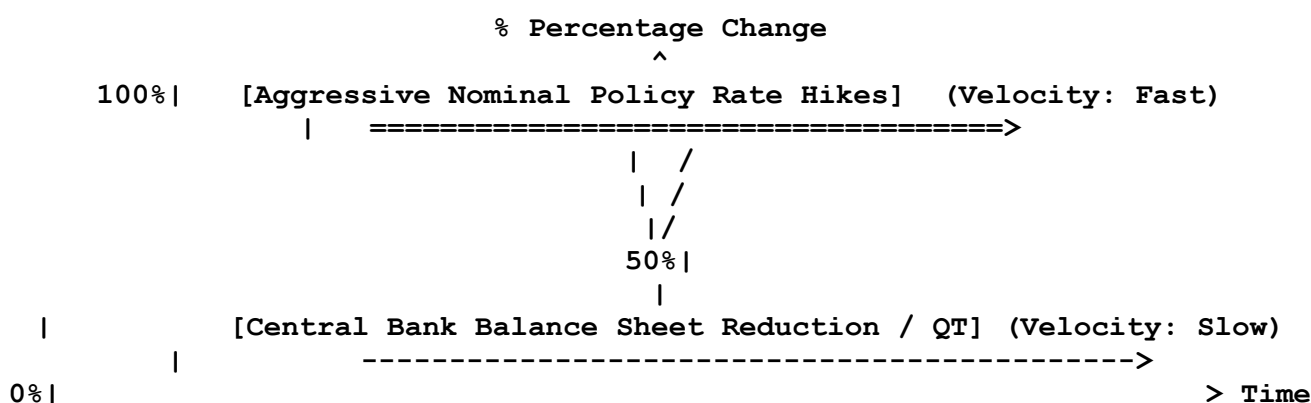
The empirical assessment evaluates the correlation between the velocity of policy rate hikes, variations in central bank balance sheet asset volumes, sovereign 10-year yield volatilities, and headline/core consumer price index (CPI) trajectories. This macro-synthesis allows us to isolate instances of policy friction where unconventional policy residuals directly impaired or delayed the stabilization of price levels.

4. Empirical Analysis and Policy Friction

4.1 Quantitative Incoherence: Rate Hikes vs. Asset Footprints

The fundamental empirical friction identified during synchronized tightening cycles is the phenomenon of **Quantitative Incoherence**. Between 2022 and 2024, global central banks raised interest rates at the fastest pace in modern history. However, their balance sheets shrank at a much slower, asymmetric velocity.

TYPICAL MACROECONOMIC VELOCITY MISMATCH (2022-2025)





This asymmetry reveals that while central banks used short-term interest rates to suppress aggregate demand, the structural liquidity premium embedded in the financial markets due to the \$9+ trillion asset footprint of the Federal Reserve (and proportional holdings at the ECB and BoE) remained highly active.

Data shows that the transmission of a 100-basis-point rate hike into actual tightening of commercial financial conditions was delayed by an average of 4.5 to 6 months compared to pre-UMP historic cycles. The primary culprit was the high concentration of excess reserves, which insulated commercial banking institutions from immediate liquidity pressures.

4.2 The Collision of Financial Stability and Price Mandates

The empirical analysis highlights a recurring structural failure point: **the financial stability circuit breaker**. When central banks synchronized their rate hikes, they rapidly devalued the legacy fixed-income portfolios held by commercial banks and non-bank financial institutions (NBFIs).

- **The Silicon Valley Bank (US) and Regional Banking Shock (2023):** Rapid interest rate hikes created immense unrealized losses on available-for-sale (AFS) and held-to-maturity (HTM) securities portfolios. These portfolios were built using liquidity generated during the pandemic-era QE programs. To prevent a systemic run, the Federal Reserve had to introduce the Bank Term Funding Program (BTFP), an unconventional liquidity facility that injected over \$160 billion back into the banking system. This injection directly counteracted the quantitative tightening objective of draining liquidity.
- **The UK LDI Crisis (2022):** The Bank of England faced a structural threat when surging gilt yields triggered collateral calls for Liability-Driven Investment (LDI) funds managed on behalf of pension schemes. The BoE was forced to pause its planned active QT asset sales and instead launch a temporary £65 billion emergency asset purchase program. This meant the central bank was actively buying long-term bonds (expansionary UMP) while simultaneously raising its Bank Rate (conventional contractionary policy) to combat double-digit inflation.

These episodes demonstrate that when conventional policy hikes operate in an environment saturated with the legacy effects of UMPs, they expose deep vulnerabilities in financial market structures. This forces central banks into disruptive, self-cancelling policy loops.

4.3 International Spillovers and the Dollar Hegemony

In a globally synchronized tightening regime, asymmetric UMP frameworks create massive foreign exchange and imported inflation distortions. As the Federal Reserve aggressively raised its target range and commenced passive QT, it triggered a global dollar shortage.

Central banks that delayed balance sheet normalization or maintained active yield-suppression interventions faced severe economic penalties:

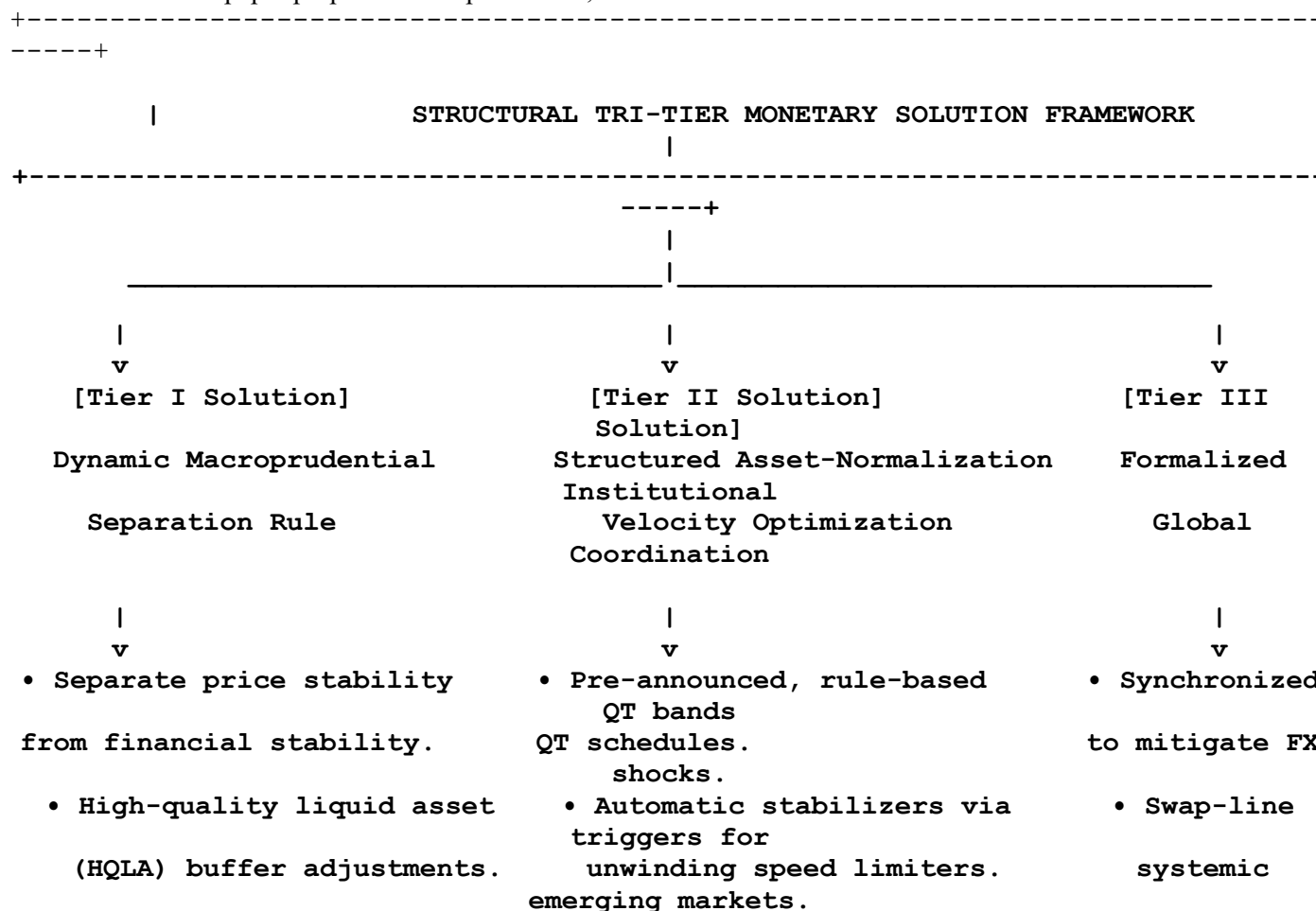
Central Bank	Policy Disconnect (2022-2024)	Currency Depreciatory Impact	Macroeconomic Consequence
Bank of Japan (BoJ)	Maintained Yield Curve Control (YCC) limiting 10-year JGB yields while Fed hiked rates.	Yen depreciated past 150-160 per USD to multi-decade lows.	Imported massive cost-push inflation via energy and food imports, destabilizing household consumption.
European Central Bank (ECB)	Introduced the Transmission Protection Instrument (TPI) to purchase distressed southern Eurozone debt while raising main refinancing rates.	Euro dropped below parity with the USD in late 2022.	Exacerbated the Eurozone energy crisis by driving up the real cost of dollar-denominated LNG imports.



This empirical reality confirms that UMPs cannot be treated as purely domestic instruments. In a highly integrated global financial architecture, keeping expansionary UMP mechanisms active during a synchronized global tightening cycle shifts severe structural adjustments onto exchange rates and trade balances. This directly disrupts international price stability.

5. Structural Solutions to the Research Problem

To resolve the transmission friction, financial dominance, and international spillovers caused by the overlap of conventional rate hikes and unconventional policy portfolios, central banks must move away from ad-hoc emergency interventions. This paper proposes a comprehensive, structural three-tier solution framework.



5.1 Tier I: The Dynamic Macroprudential Separation Framework

The primary solution to the policy contradiction is the institutionalization of a strict **Separation Rule** between price stability tools and financial stability tools. Central banks must stop using asset-purchasing balance sheet expansions to fix structural liquidity issues during an inflation fight. Instead, financial stability must be maintained entirely through targeted macro prudential regulations and asset-side adjustments within the banking sector itself.

- **Contingent High-Quality Liquid Asset (HQLA) Buffers:** Rather than requiring central bank asset purchases during a rate-induced bond market sell-off, regulatory frameworks must require commercial banks and NBFIs to maintain dynamic, countercyclical HQLA buffers. These buffers must automatically scale up during periods of prolonged UMP deployment. This creates an internal absorption mechanism within the private sector to digest bond price volatility when interest rates rise, eliminating the need for central banks to step in with emergency liquidity injections.



- **Dual-Tiered Reserve System Optimisation:** To minimize the wealth-degrading effects of paying massive interest on excess reserves during rate hikes, central banks should implement a mandatory, non-linear dual-tiered reserve remuneration framework. Under this system, only a baseline tranche of required operational reserves is remunerated at the active policy rate. Excess liquidity reserves generated by legacy UMPs should be remunerated at a steep discount or zero rate. This removes the fiscal drain on the central bank, eliminates political risks, and incentivizes commercial banks to clear excess liquidity back into productive, real-economy credit channels.

5.2 Tier II: Structured Asset-Normalization Velocity Optimization (SANVO)

To resolve the problem of quantitative incoherence, central banks must implement a rule-based, predictable approach to unwinding UMPs. This should replace the erratic shifts between active and passive Quantitative Tightening seen in the past.

- **The Balanced Delta Rule:** Central banks should commit to a formalised **Balanced Delta Rule**. This rule links the speed of balance sheet reductions directly to the velocity of interest rate adjustments:

$$\Delta BS_t = \alpha (\Delta R_{\text{policy}, t-1}) \cdot \Phi(\text{Market Liquidity Index})$$

Where α is a standardized calibration coefficient and Φ is an automated volatility limiter based on market bid-ask spreads. By linking these two variables, the bond market can accurately forecast the removal of liquidity. This prevents sudden spikes in the term premium and avoids the market distress seen during the UK LDI crisis and the 2023 US regional banking shock.

- **Automated Structural Facility Conversion:** Any emergency liquidity support facility deployed during a tightening cycle (such as the US BTFP) must feature built-in, mandatory penalties on pricing and strict expiration timelines. This prevents these facilities from morphing into permanent UMP expansions. The collateral accepted by these facilities must be valued at a standardized market-to-market rate with dynamic haircuts, rather than at par value. This structure prevents moral hazard and preserves the contractionary focus of the broader monetary policy stance.

5.3 Tier III: Formalized Institutional Global Coordination Protocols: Because synchronised global interest rate hikes generate severe international spillovers and trigger exchange-rate-driven inflation, UMP unwinding must be managed through global institutional frameworks.

- **Establishment of Synchronized QT Bands via the IMF and BIS:** Under the guidance of the Bank for International Settlements (BIS) and the International Monetary Fund (IMF), major advanced economies (Fed, ECB, BoE, BoJ) should establish coordinated asset-reduction bands. Central banks must avoid one-sided, aggressive asset sales that export currency shocks to trading partners. Instead, they should synchronize the pace of balance sheet reductions to maintain stable exchange rate relationships, keeping them within a predictable, volatility-controlled band.
- **Institutionalised Standing Swap-Line Triggers:** To protect vulnerable emerging markets from the capital flight caused by synchronized advanced-economy rate hikes and QT, the Federal Reserve's standing foreign currency swap lines must be expanded into a rules-based, automated global facility. Access to these swap lines should trigger automatically whenever the global synchronized rate-hiking index crosses a historical volatility threshold. This arrangement provides emerging markets with predictable access to dollar liquidity, preventing defensive, fragmented interest rate hikes and stabilizing global trade flows.

6. Conclusion

6.1 Key Research Findings

This paper has examined the structural friction and operational challenges that arise when unconventional monetary policies (UMPs) overlap with aggressive, synchronized global interest rate hikes. The empirical and



theoretical analysis reveals that carrying massive legacy central bank balance sheets during a tightening cycle creates a state of **quantitative incoherence**. This friction slows down traditional monetary transmission, warps the yield curve, and creates a dampening effect on inflation-targeting efforts.

Furthermore, the study highlights how conventional rate hikes can crash into financial markets saturated with legacy QE liquidity, triggering severe stability shocks (such as the 2022 UK gilt crisis and the 2023 US regional banking failures). These shocks force central banks into contradictory, self-cancelling policy actions. Finally, the paper demonstrates that uncoordinated UMP structures during a synchronised tightening cycle cause severe international spillovers, driving down exchange rates and importing inflation across borders.

6.2 Implementation Imperative

The traditional central banking playbook is no longer sufficient for managing the complexities of a post-UMP global economy. Relying solely on short-term interest rate adjustments while leaving massive asset portfolios unmanaged creates structural vulnerabilities across the global financial system.

To restore the efficacy of monetary policy and ensure long-term price stability, central banks must urgently implement the tri-tier solution framework outlined in this study:

- ✓ Establish a strict **Macroprudential Separation Rule** supported by dynamic asset-side regulations to insulate monetary policy from financial stability shocks.
- ✓ Adopt the **Balanced Delta Rule** to ensure predictable, rule-based balance sheet normalization.
- ✓ Institutionalise **Cross-Border Coordination Protocols** through the BIS and IMF to mitigate destructive exchange rate spillovers and stabilize international capital flows.
- ✓ By adopting these structural reforms, global monetary authorities can successfully resolve the contradictions built into modern central banking. This will allow them to combat persistent inflation effectively without triggering systemic financial crises or fiscal dominance.

The traditional central banking playbook is no longer sufficient for managing the complexities of a post-UMP global economy, as relying solely on short-term interest rate adjustments while leaving massive asset portfolios unmanaged creates structural vulnerabilities across the global financial system. The empirical and theoretical analysis in this study reveals that carrying large legacy central bank balance sheets during an aggressive tightening cycle creates a state of quantitative incoherence that slows down traditional monetary transmission, warps the yield curve, and dampens inflation-targeting efforts. Furthermore, these conventional rate hikes can crash into financial markets saturated with legacy QE liquidity, triggering severe stability shocks that force central banks into contradictory, self-canceling policy actions while causing severe international spillovers that drive down exchange rates and import inflation across borders. To restore the efficacy of monetary policy and ensure long-term price stability, central banks must urgently implement the proposed tri-tier solution framework: establishing a strict Macroprudential Separation Rule to insulate monetary policy from financial stability shocks, adopting the Balanced Delta Rule to ensure predictable balance sheet normalization, and institutionalizing cross-border coordination protocols through the BIS and IMF to mitigate destructive exchange rate spillovers. By adopting these structural reforms, global monetary authorities can successfully resolve the contradictions built into modern central banking, allowing them to combat persistent inflation effectively without triggering systemic financial crises or fiscal dominance.

REFERENCES

1. Acharya, V. V., Chauhan, R., Rajan, R. G., & Steffen, S. (2024). Liquidity dependence on the central bank: The footprint of quantitative easing on bank balance sheets. *Journal of Finance*, 79(2), 1105–1151. doi.org
2. Aizenman, J., Jinjarak, Y., Nguyen, H. T., & Park, D. T. (2024). Fiscal dominance, monetary policy, and inflation expectations in advanced economies. *Journal of International Money and Finance*, 141, 103012. doi.org
3. Brunnermeier, M. K., & Reis, R. (2023). Financial dominance and the return of inflation. *Journal of Economic Perspectives*, 37(3), 147–172. doi.org



4. Cecchetti, S. G., Feroli, M., Kashyap, A. K., Mann, C. L., & Schoenholtz, K. L. (2023). Managing disinflation: The interaction between conventional monetary policy and quantitative tightening. *CEPR Discussion Paper Series*, No. DP17982. doi.org
5. Eggertsson, G. B., & Woodford, M. (2003). The zero bound on interest rates and optimal monetary policy. *Brookings Papers on Economic Activity*, 2003(1), 139–211. doi.org
6. Gertler, M., & Karadi, P. (2011). A model of unconventional monetary policy. *Journal of Monetary Economics*, 58(1), 17–34. doi.org
7. Krishnamurthy, A., & Vissing-Jorgensen, A. (2011). The effects of quantitative easing on interest rates: Channels and implications for policy. *Brookings Papers on Economic Activity*, 2011(2), 215–265. doi.org
8. Obstfeld, M., & Zhou, H. (2024). The global dollar cycle, synchronized monetary tightening, and exchange rate pass-through. *Journal of International Economics*, 148, 103890. doi.org
9. Rey, H. (2013). Dilemma not trilemma: The global financial cycle and monetary policy independence. *Proceedings of the Federal Reserve Bank of Kansas City Economic Policy Symposium*, 1–45. doi.org