

Examining the Role of Repo Rate in Controlling Inflation: Analyzing the Dynamics of the Proportional Relationship

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Abstract

A research study has assessed how effective repo rate adjustments as an instrument of monetary policy control across most economies could result in inflation. Based on raw data and reports collated from Bangladesh and India as well as global experiences between 2020 and 2022, the paper has shown that repo-linked measures were found to be deficient in containing structurally inefficient supply chains responsible for causing inflation. It also found that during the period 2020 to 2022, global supply chain issues, notably shortages in semiconductors and crises in energy, made up for about 50 to 60 percent of inflationary pressures. Repo rates increased during the period but, as the forgoing displays, economic recovery was hampered and inflation by those factors was not addressed. Studies across India and Bangladesh show repo measures, as well, were ineffective in dealing with inflation brought on by structure. Of interest, though, is Sri Lanka, where the highlight was on the need to have both monetary and fiscal interventions. The study proposes a multi-pronged approach aimed at controlling inflation with particular effects and focusing on investment in supply chains as well as fiscal measures and structural reforms.

Keywords: Repo Rate, Inflation, Supply Chain

Introduction

The repo rate is a method of controlling the monetary policy, whereby the intent and effect is temperature by manipulating the borrowing cost and aggregate gravity on inflation. Taylor Rule indeed advocates, with increasing interest, lesser demand and prices. This table gets shaky if inflation is supply-driven or structural inefficiencies.

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During this period, global inflationary pressure through supply chain disruptions. The semiconductor and energy crisis had caused a 50-60% price increase within those years. Central banks like that of the U.S. and Eurozone have jacked up their repo rates aggressively. The paint strokes economic recovery to some extent, but it cannot be said to be addressing the need for correction in supply-side aspects of inflation.

India and Bangladesh would have structural inefficiencies such as failing agriculture and heavy dependence on energy to understand the particularities involved in repo rate adjustments, where they have further implications toward the monetary interventions in integrated approaches to controlling inflation.

Literature Review

Global Scenario (2020-2022)

Peter S. Jarsulic, in *Effective Inflation Control Requires Supply-Side Policy (PERI)*, expresses that monetary instruments like repo rate hikes are ineffective to deal with inflation arising out of supply-side shocks. For instance, global inflation between 2020 and 2022 was driven principally by supply chain bottlenecks such as semiconductor shortages and energy crises, accounting for 50-60% of the inflation's pressure. Central banks raised interest rates as an attempt to control inflation, which, however, was unrelated to the supply side and as such, slowed its economic recovery.

India's Structural Challenges (2008-2018)

Md. Akhtaruzzaman, in 'Revisiting Effectiveness of Interest Rate as Tool for Inflation Control' (MPRA), criticizes the dependence on repo rate in developing economies. The author finds that between 2008 and 2018, the Reserve Bank of India raised repo rate by 16 times, resulting in average reduction of inflation of 1-3% over the next 12 months; he refers to such weak reaction to structural inefficiencies associated with poor agricultural performance and dependence on energy. Akhtaruzzaman proposes monetary policy-mitigative fiscal reforms, such as subsidies for farmers and diversifying sources of energy, to attack the root causes of inflation.

Bangladesh Context (2021-2023)

According to Zahid Hussain in Hiking Repo Rate Not Enough to Tame Inflation (The Business Standard), emerging economies encumbered by spiraled food and fuel prices find it tough to combat inflation. Between 2021 and 2023, Bangladesh increased its repo rate by up to 275 basis points; nevertheless, inflation stayed over 8%. Food items account for the more than 70% inflation and worsen the situation from interruption in global supply chain and production and distribution inefficiency within the country. According to Hussain, however, other measures like food price stabilization programs do better.

Sri Lanka Context (2022-2024)

On the contrary, Sri Lanka is one case where borrowing or budgetary measures would be confined only to reduction in inflation rates. It reduced from 49.93 percent in 2022 to 2.34 percent in 2024 as a result of restructuring the public debt and other specific fiscal measures. Very evidently, this example underscores the importance of unifying monetary and fiscal policies in their common objective-inflation targeting.

Methodology

Data Sources

The macroeconomic databases of Bangladesh, India, and Sri Lanka covering the years 2008 to 2024.

Statistical Analysis

Descriptive Statistics: Standard deviations were used to assess variability in inflation and repo rates.

Pearson Correlation Analysis: repo rate trends with inflation trends in Sri Lanka and Bangladesh were compared using this study.

Results

Bangladesh (2021-2023)

However, repo rates have increased from 5.28% to 8.62% but the concomitant inflation rate has risen from 7.67% to 10.13%.

More than 70% of inflationary pressures are derived from hike in food prices and these effects can be accounted for global supply chain disruption and domestic inefficiencies.

There is a strong positive correlation ($r = 0.748$) suggesting that these repo rate changes did not have much influence on the economy.

Sri Lanka (2022 - 2024)

Repo rates reached their peak in 2022 at 12.67%. Repo rates came down to 8.33% in 2024.

Public Debt Restructuring and fiscal measures contributed to that drop in inflation from 49.93% in 2022 to an expected 2.34% in 2024.

A strong positive correlation ($r = 0.843$) underlines the good coordination of monetary and fiscal policies.

India (2008-2018)

In experiment 1, 16 hikes in the repo rate would tend to produce a decline in the inflation rate by an average of only 1.3% for the following 12 months.

The degree of effectiveness of monetary policy has been restricted by structural inefficiencies such as poor performance in agriculture and dependence on energy.

Global Context (2020 - 2022)

50%-60% of the inflationary pressures were attributed to supply chain bottlenecks.

The increase in repo rates by central banks contributed, rather, to the severe slowdown in the economy, while supply-side issues remained.

Analysis

<i>Descriptive Statistics</i>												
Variables	Repo Rate - Bangladesh			Inflation Rate - Bangladesh			Inflation Rate – Sri Lanka			Repo Rate - Sri Lanka		
	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024
Mean	5.275	6.45	8.62	7.674	9.473	10.125	49.933	19.833	2.34	12.667	12.083	8.325
Std. Deviation	0.469	0.832	0.705	1.318	0.442	0.615	21.986	21.722	2.199	4.174	2.539	0.121
Shapiro-Wilk	0.816	0.893	0.838	0.895	0.897	0.724	0.852	0.79	0.938	0.669	0.904	0.594
P-value of Shapiro-Wilk	0.014	0.128	0.042	0.137	0.147	0.002	0.038	0.007	0.535	< .001	0.178	< .001
Minimum	4.75	4.75	8	5.86	8.57	9.67	16.8	0.8	-0.8	5.5	8.5	8.25
Maximum	5.85	7.75	10	9.52	9.94	11.66	73.7	53.6	6.5	15.5	15.5	8.5

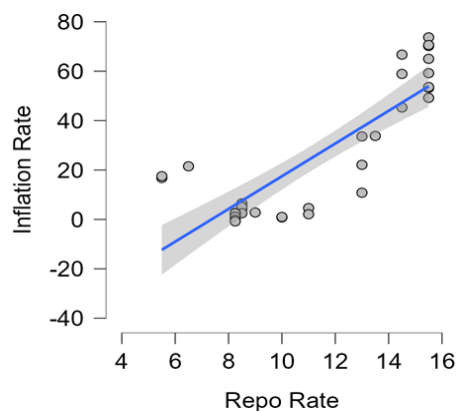
Inflation in Bangladesh grew from 7.67% in 2022 to 10.13% in 2024, while the repo rate went from 5.28% in 2022 to 8.62% in 2024. Inflation in Sri Lanka fell sharply from 49.93% in 2022 to 19.83% in 2023 and 2.34% in 2024, while the country's repo rate peaked at 12.67% in 2022 and subsequently fell to 8.33% by 2024. Bangladesh’s repo rate remains consistently stable, with a low standard deviation of 0.7–0.8, reflecting gradual adjustments. The inflation rate also shows low variability, although it trends slightly upward. In comparison, Sri Lanka's repo rate policy has

progressively stabilized, achieving an even lower standard deviation of 0.121 by 2024. Initially, Sri Lanka faced high inflation volatility, with a standard deviation of 21.986 in 2022, but this decreased substantially by 2024, indicating improved inflation stability. Overall, Bangladesh exhibits steadiness in both repo rate and inflation, while Sri Lanka demonstrates significant progress toward stability over the observed period. Shapiro-Wilk p-values indicate repo and inflation data may not follow normal distributions, particularly in cases below 0.05, with Sri Lanka's data, particularly the 2022 inflation rate, showing a high deviation.

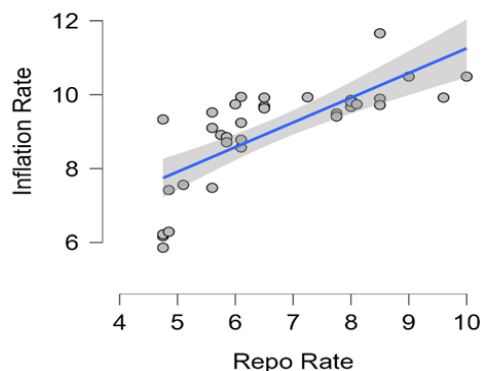
In comparing Bangladesh and Sri Lanka's use of the repo rate to manage inflation, Sri Lanka appears more successful. Bangladesh saw a steady increase in both its repo rate and inflation, with repo rate adjustments showing limited impact on controlling inflation. In contrast, Sri Lanka started with high repo rates in 2022 and was able to sharply reduce inflation from 49.93% to 2.34% by 2024. This suggests that Sri Lanka's repo rate adjustments were more effective in curbing inflation, while Bangladesh's approach had a less pronounced impact on inflation control, suggesting that additional measures may be required for effective inflation control.

Inflation Rate - Repo Rate

Sri Lanka



Bangladesh



Pearson's Correlations	Variable		Repo Rate
Bangladesh	Inflation Rate	Pearson's r	0.748
		p-value	< .001
			Repo Rate
Sri Lanka	Inflation Rate	Pearson's r	0.843
		p-value	< .001

The strong positive correlation between repo rate adjustments and inflation in Bangladesh and Sri Lanka suggests that as the repo rate increased, inflation also tended to rise. However, repo rate adjustments alone were not effective in controlling inflation. In contrast, Sri Lanka's inflation rate significantly decreased over time, indicating a more aggressive repo rate strategy that effectively curbed inflation, despite initially high repo rates.

Discussion

Key Findings

1. Supply-Side vs Demand-Side Recession - Repo rate changes do bring in adjustments for addressing demand-derived inflation as a source but cannot be used on supply-side constraints.
2. Problems of Bangladesh- Structural and inefficiency factors like production in food and dependency on energy aggravate the inflation reduction benefits of rises in repo rates.
3. Representation of Success of Sri Lanka- Debt restructuring, along with monetary policy and fiscal measures, gave
4. Lessons for the World-Infrastructure and production investments are very important to insulate a country from future inflation pressure by supply chain disruptions.

Policy Recommendations

1. Supply Chain Investments: Improve infrastructure and logistics in order to overcome bottlenecks in the production process.

2. Targeted fiscal measures: Supply food and energy costs with subsidies to stabilize prices in critical sectors.

3. Debt restructuring for the relief of household and national debt burdens: Reduces negative effects of increased borrowing costs.

4. Integrated approaches: Combine monetary policies with fiscal reforms including tax incentives and agricultural subsidies.

Conclusion

In other words, action alone on the repo rate will not arrest supply-side inflation or structural inefficiencies. While Sri Lanka shows how good an integrated approach can be, both Bangladesh and India have their own stories to tell regarding cash interest transfer not being enough. Based on the developments emerging from these countries, policymakers will have to go in for a whole gate approach that will build resilience in supply chains, direct fiscal action, and structural reforms in order to control inflation sustainably.

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