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Government Debt to Commercial Banks and Inflation Volatility in Iran

Derakhshani Darabi, K.[1]

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Abstract

In recent years, Iran has experienced a significant increase in government debt to commercial banks. Therefore, it is crucial to understand the impact of increase in the government's debts to Commercial banks on the macroeconomic environment. Therefore, the main purpose of this article is to find an answer to the question of what is the relationship between the government's debt to commercial banks and inflation volatility in Iran's economy. For this purpose, we used seasonal data of inflation, government debt to banks, GDP gap, money, exchange rate and import from the period of 1989-2022, and the data were extracted from the data bank of the Central Bank of Iran. Inflation volatilities were calculated by employing the TVP-SVM model and the coefficients were estimated using the ARDL model. The findings derived from calculating the volatility of inflation show that the model with time-varying coefficients offers a suitable explanation for estimating inflation volatilities. The results show that there is a significant direct relationship between the change in government debt to commercial banks and inflation volatilities, both in the short and long run. Also, the changes in the GDP gap, exchange rate and the money exhibit a direct and significant relationship with inflation volatilities, however, the money coefficient is not statistically significant in the long run. In addition, importing decreases inflation volatilities in the short run, but it has no significant relationship with inflation volatilities in the long run. Based on the results, it is proposed to impose limiting laws on the government's debt and the debt of state-owned companies to commercial banks, particularly focusing on short-term debt within the current account framework.

Keywords: Government Debt, Inflation Volatility, Uncertainty, Time-varying Coefficients, Bank.

JEL Classification: H63, E37, C22.

1. Assistant Professor of Economics, Faculty of Administrative Sciences and Economics, Arak University, Arak, Iran.
Email: derakhshani.kaveh@gmail.com

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1. Introduction

In recent years, the government's debt to commercial banks has been steadily increasing, with its share in the total government debt growing day by day. This debt creates an crowding out effect, limiting bank resources available for private sectors and leading banks to overdraw from the central bank. Between 2018 and 2021, the government's debt to commercial banks increased by an average of 26% annually, resulting in an increase in banks' debt to the Central Bank of Iran.

Recognizing the significance of the government's debt to commercial banks and its impact on changes in the monetary base of Iran's economy, it is crucial to investigate and analyze its effects on key economic variables, particularly fluctuations in inflation. Therefore, the main objective of this research is to explore the correlation between government debt to commercial banks and inflation fluctuations in Iran's economy.

2. Theoretical framework

Post-Keynesians indicate on the endogenous of the money supply, where the money supply is determined by the real flow of the economy. This approach focuses on the asset (credit) side of the banking system rather than the debt (deposit) side. Liquidity is analyzed by examining the credit of the banking system to the private and government sectors. Some economists argue that solely focusing on the central bank is insufficient to control inflation, and it is important to consider the ability of commercial banks to manage the money supply.

Government debt to commercial banks impacts price fluctuations in two main channels: first, it raises financing costs for the private sector, resulting in price changes; second, by reducing private sector activities, it weakens production foundations, leading to decreased supply and creating conditions for price and inflation increases. Additionally, during inflationary periods, the yield rate of government debt bonds rises, making government financing more expensive.

Furthermore, increased government debt to the banking system reduces available resources, increasing banks' risk. This heightened risk can lead to monetary and credit instability, creating uncertainty in the banking system and the overall economy, ultimately increasing fluctuations in economic variables, particularly inflation.

3. Methodology

In this study, the following equation is used to examine the factors that affect inflation.

$$infvol_t = \alpha_0 + \alpha_1 inf_t + \alpha_2 Ddob_t + \alpha_3 Dygp_t + \alpha_4 Dm_t + \alpha_5 Der_t + \alpha_6 imp_t + \varepsilon_t$$

Where, $infvol$ represents inflation volatility. To calculate this variable, monthly inflation data based on the consumer production index was used, and its volatilities were calculated using the Time-Varying Parameters with Stochastic Volatility in Mean (TVP-SVM) model. inf represents inflation based on the consumer price index. $Ddob$ is the change in government debt to commercial banks. $Dygp$ is the change in the GDP gap and estimated using the Hodrick-Prescott filter. Dm is the growth of money. Der is nominal exchange rate changes. imp is the ratio of imports to GDP.

The research period for seasonal data is from 1989-2022, with data for all variables extracted from the central bank of Iran database, and coefficients are estimated using ARDL approach.

4. Discussion

In this research, the TVP-SVM model has been used to estimate inflation volatilities. The estimation results show that the average inflation volatility index μ is equal to 3.155, with a 90% confidence level, falling within the range of 2.313 to 3.947.

The coefficient α represents the relationship between inflation volatility and inflation in each period. The average estimated for this coefficient is positive, at 20.402, indicating that, in general, inflation volatility has increased during periods when inflation has also increased. This confirms Friedman and Okan's hypothesis regarding the positive relationship between inflation and inflation volatility in Iran.

The results of estimating short-run coefficients show that inflation volatility in the current period has a significant relationship with previous lags. Inflation also has a significant relationship with inflation volatility up to three lags.

The change in government debt to commercial banks in the same season and with a one-season delay has a positive relationship with inflation volatilities. These results show that changes in government debt to commercial banks through changes in the amount of demand have an immediate effect on inflation, and its effects manifest in the same season and the next season.

The change in the production gap in the same season and with two season's lags has a direct and significant relationship with inflation volatilities.

Exchange rate changes in the same season and up to the next three seasons have a positive relationship with inflation volatilities, but the coefficient of simultaneous interruption is not statistically significant. These results show the strong influence of exchange rate changes on inflation volatility in Iran's economy.

The estimated coefficients for import in a simultaneous season and first lag are negative and statistically significant. These results confirm the efficiency of the import anchor in controlling the price level in the short run for the Iranian economy.

The estimated coefficient for the long-run relationship between inflation and inflation volatility is positive and statistically significant. This indicates that higher inflation levels are associated with larger inflation fluctuations in the long term. Conversely, when inflation levels decrease, so do its fluctuations.

In the long run, changes in government debt to commercial banks show a positive and statistically significant relationship with inflation volatility. According to theoretical literature, an increase in government debt to commercial banks leads to higher inflation fluctuations. In Iran, an increase in government debt to commercial banks impacts inflation volatility by increasing banks' debt to

the Central Bank. This, in turn, affects changes in the monetary base and money supply.

5. Conclusion and Suggestions

The results show a direct and significant relationship between changes in government debt to commercial banks and inflation volatility in both the short and long run. An increase in government debt to commercial banks leads to higher inflation volatility, which can increase uncertainty in the economy and ultimately result in a decrease in economic activity and private sector investment.

In Iran's economy, it is evident that government debt to commercial banks has more negative effects compared to government debt to the central bank. This is because government debt to commercial banks not only raises interest rates by putting pressure on banking resources and limiting private sector access to funds, but also increases liquidity and credit risk in the banking system, leading to greater economic risk and uncertainty. Moreover, it exacerbates the financing issues within the economy.

Therefore, it is recommended to establish a legal framework to restrict government debt financing through the banking system. Given that a significant portion of government debt to the banking system is related to the government's current account, policymakers should pay special attention to this aspect when formulating strategies to limit government debt to banks. Clear and specific laws should be enacted to define the limits of government financing in quantitative terms, specifying the percentage of total expenditures that government debt should not exceed.

6. Ethical Considerations

6.1. Compliance with ethical guidelines

The authors of the article declare that research ethics have been followed in this study.

6.2. Funding

No funding received from public, commercial or not-for-profit agencies.

6.3. Authors' contribution

The authors of the article declare that he has conducted all aspect of this study.

6.4. Conflict of interest

The author declares any conflicts of interest.

6.5. Acknowledgments

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