

## Monetary policy and financial stability in Iran (DSGE approach)

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### Abstract:

Price stability and sustainable economic growth are conventionally considered as key goals of monetary policy. Financial stability is also recognized as the third pillar in the monetary policy objective function after the financial crisis of 2007. Although financial stability “as the third target in the monetary policy objective functions” is evidently inconsistent with the twin conventional monetary policy goals, it mitigates the side effects of financial turmoil impact on the price and growth instability in the macrocosmic environment in the medium term. Financial crises, which have historically created large deviations in the monetary policy goals, necessitate empowering the conventional policy instruments (policy interest rate, monetary aggregate and rate of requirement ratio) with unconventional policy instruments. In this context, unconventional supplementary monetary policy instruments streamline monetary transmission mechanism to achieve asymmetrically triple monetary policy goals through expanding open market operations to non-governmental bonds, facilitating banks’ overnight financing in the payment system, and initiating zero bound interest rate policy. In this research, a Dynamic Stochastic General Equilibrium Model (DSGE-Gertler and Karadi, 2011) is technically utilized to estimate the impact of conventional (interest rate) and unconventional (credit lines) monetary policy instruments on the macroeconomic variables (inflation, output growth, exchange rate and stock market price index), while simulating the macroeconomic variables response to financial instability. The simulation evaluates monetary policy impulse response function based on optimization approach in the context of crisis scenario. Monetary policy rules basically assessed in this paper are introduced in the context of optimization and non-optimization, which include Taylor interest rate rule without financial stability, simple optimization interest rate rule with financial stability, and unconventional monetary policy rule. In this context, Central banks’ line of credits as unconventional tool, which is

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influenced by the policy maker decisions, injects directly to banking network flow of funds. Central banks, which had sold the public bonds to the families in the form of risk-free investment in the first step, accumulate financial resources in the balance sheet. Accumulated financial resources lend simultaneously to the firms in the second step in the context of unconventional expansionary monetary policy in order to increase banking network leverage ratio, which streamlines credit operations and develops private sector investment. Presumably, central bank intervention is empirically considered inefficient compared to the private sector in the financial intermediaries due to CBs cost inefficiency to find and allocate to the key economic sectors. The DSGE parameters are statistically estimated by the Bayesian approach through using time series for some macroeconomic variables including consumption, private investment, inflation, government expenditure, change in outstanding loan, commercial banks leverage ratio, and stock market return. Given the fact that the Bayesian estimation is technically required to introduce the distribution of parameters as priors, priors are determined through numerical analysis as well as through previous research. The estimation log data density mounted at about 399 and the robustness of estimated parameters has been verified based on test of Brooks and Gelman (1988). In this study, rapid reduction in the quality of capital is considered financial crises shock indicator which influence key macroeconomic variables. Simulation results indicate that unconventional monetary policy affects efficiently real sector sustainability while mitigating financial instability (assets market) in the macroeconomic environment. In this regard, financial stability is evidently accompanied by the lower nominal interest rate and inflation in line with Gertler and Karadi (2011). In other words, although unconventional rather than conventional monetary policy instruments were limitedly utilized amid financial turmoil in Iranian economy, they create sustainable growth along with lower interest rate and inflation in the medium term accompanied by higher household welfare. Utilization of unconventional monetary policy instruments diversifies policy tools and reduces the deviation of conventional policy instruments and target variables (price, output growth and financial stability) in the Iran macroeconomic environment.

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