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Monetary policy and equity premium puzzle in Iran: a practical approach using a Dynamic Stochastic General Equilibrium Model

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EXTENDED ABSTRACT

INTRODUCTION

One of the most famous puzzles related to the stock market is the equity premium puzzle, which was first introduced by Mehra and Prescott in the framework of the C-CAPM model. This puzzle states that the return of risky assets (stocks) is so high, that high-risk aversion of investors explains it. Investigating the equity premium puzzle is important because it provides a basis for modifying models like C-CAPM that fail when faced with financial data. The purpose of this study is to investigate the equity premium puzzle in Iran. This study, focusing on the relationship between the real and financial sectors (by examining the central bank's behavior in creating the equity premium puzzle), specified a DSGE model in accordance with the conditions of Iran's economy; The specified model is able to examine the equity premium puzzle in Iran by applying technology shocks, government spending, oil

income, stock price index, money supply and the effect of these shocks on asset returns and consumption. In this study, it is assumed that the central bank reacts to the output gap and inflation through changes in the money supply growth. The results showed that the positive shocks of technology and stock prices in the middle -run and long-run until reaching steady- state, the positive shock of oil income in the short-run and middle -run and the positive shock of money supply in the short-run with producing a high equity premium, they are able to explain the equity premium puzzle in Iran; This is while the positive shock of government spending cannot explain the equity premium puzzle in Iran by creating a negative equity premium

METHODOLOGY

This study, focusing on the relationship between the real and financial sectors and in order to investigate the behavior of the central bank in creating the equity premium puzzle, has specified a DSGE model in accordance with the conditions of the Iranian economy; The specified model is able to examine the equity premium puzzle in Iran by applying technology shocks, government spending, oil income, stock price index, money supply and the effect of these shocks on assets returns and consumption.

The data used in this study were collected from the first quarter of 1993 to the fourth quarter of 2021 from the website of Central Bank of Iran and Tehran Stock Exchange Organization. The specified DSGE model is finally simulated using MATLAB software and Diner program.

FINDINGS

The results of the study showed that the positive shocks of technology and stock prices in the middle -run and long-run until reaching steady- state, the positive shock of oil income in the short-run and middle -run and the positive shock of money supply in the short-run with producing a high equity premium, they are able to explain the equity premium puzzle in Iran; This is while the positive shock of government spending cannot explain the equity premium puzzle in Iran by creating a negative equity premium

CONCLUSION

The purpose of the present study is to investigate the Equity premium puzzle in Iran. Focusing on the relationship between the real and financial sectors, this study specified a DSGE model in accordance with the conditions of Iran's

economy; The results showed that with the application of positive shocks to technology, oil income and stock prices at a higher value of the output gap coefficient (δ_y=-1), consumption fluctuations are lower and risk-free asset return fluctuations are higher (lower consumption fluctuations is due to high risk aversion and the existence of consumption habits in people); According to the results, in the amount of the output gap coefficient is high, the positive shocks of technology and stock prices in the middle-run and long-run, the positive shock of oil income in the short-run and middle-run, and the positive shock of money supply in the short-run by creating stock returns which is higher than the risk-free asset yield, they produce a positive equity premium that can explain the equity premium puzzle in Iran; These results agree with the findings of Mehra and Prescott's C-CAPM model. The theory states that the positive equity premium produced by the high risk aversion of investors can be justified, because risk averse investors avoid consumption fluctuations and tend to smooth their consumption with higher fluctuations in labor supply or risk-free asset rates. The positive shock of government spending was not able to explain the equity premium puzzle due to the creation of a negative equity premium.

The present study is associated with 2 policy recommendations: 1- It is to pay attention to structural parameters such as consumption habits and risk aversion because households have better information about the value of these parameters, so policy makers' lack of attention to these parameters may have a negative effect on their policy goals. 2- Although the existence of a high equity premium can be a good incentive to invest in a risky asset compared to a risk-free asset in uncertain conditions. But the existence of a high equity premium can reduce the uncertainty and risk aversion of investors so that they undertake risky behaviors; Therefore, in implementing their economic plans, policy makers should create the least fluctuation in the macro variables and control the uncertainty in the society.

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