

Significance of Financial Accelerators in a New Keynesian Model in Iranian Economy

Rafiei Shamsabadi, P.¹, Haji, Gh. A.^{2*}, Fakhr Hoseini, S. F.³, Sargolzaie, M.⁴

Abstract

Experimental evidence related to 2008 financial crisis and its consequences indicated the importance role of the financial sector to transfer the shocks to the real sector of the economy. In the Iranian economy also, banking is one of the major financial sectors that affects and is influenced by the overall performance of the national economy through resource mobilization, recruitment of liquidity, provision of payment tools, granting facilities, and creating interaction between investment and savings.

The analysis of the banks' roles as financial accelerators over Iranian commercial eras may provide a better understanding of effectiveness of shocks on the economy. In this paper using a New Keynesian standard dynamic stochastic general equilibrium model regarding price-stickiness, and structural parameters of the model and some of the variables are calibrated and the impacts of different shocks on some macroeconomic factors are analyzed in the following two ways.

The first mode is a model that includes financial accelerators. The second is a model without a financial accelerator. Then the ability of each model in describing each key feature of data and the effects of momentums on key variables in Iranian economy are analyzed. All the data used in this paper refer to constant prices in 2011 and 1966-2016 period annually. Results of the estimates for the models indicate that the effect of money demand momentum on the investment variable, and also the effect of monetary policy momentum on consumption, investment and production variables in the model, taking into consideration the financial accelerators, are tenser than that of the model without financial accelerator.

Keywords: Financial Accelerator Effect, Credit Crunch, Asymmetrical Information, External Finance Cost.

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1. Introduction

Many economists explain the effects of monetary policy on the economy, using the asymmetric information hypothesis and credit market frictions first introduced

1. Ph.D. student of economics, Arak unit, Islamic Azad University, Arak, Iran

Email: parisa.rafee@yahoo.com

2. Assistant Professor, Department of Economics, Arak Branch, Islamic Azad University, Arak, Iran

Email: g-haji@iau-arak.ac.ir

3. Assistant Professor of Economics, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran

Email: F_fkm21@yahoo.com

4. Assistant Professor, Department of Finance and Banking, Allameh Tabataba'i University

Email: mostafa.sargolzaee@gmail.com

by the new Keynesians. According to Gertler (1988), the financial system works so slowly that it can be ousted from financial considerations, so many economists followed his theory. Twenty years later, the worst financial crisis after the Great Depression and the abnormal situation of the credit market, during which debt-driven growth and asset prices declined, led the attention of the economists to the financial market. Thus, the potential role of financial markets in economic activity was greatly enhanced, so that in the last two decades, economic literature has been largely focused on the finance accelerator.

Bernanke (1983) argued that asymmetric information in financial markets based on inadequate information could affect the economic activity of financial markets in the short run. In his view, the Credit Squeeze during the Great Depression has resulted in an independent banking response that has led to an increase in the cost of mediation caused by the asymmetric information problem in financial markets. In other words, according to him, the credit squeeze is not merely a passive response to the decline in loan demand, due to a decline in economic activity. In spite of the initial work, it was after 1989 that Bernanke and Gertler formulated the idea in the framework of a general equilibrium model that attracted the wider attention of economic audiences.

In 1989, Bernanke and Gertler created the general equilibrium model with incomplete financial markets, in which the actions of all economic agents outperformed the basic principles, in which short-term production fluctuations were strengthened and expanded due to information friction based on information. Their study led to more focus on the subject of financial accelerator in the economic literature. It should be noted that the problem of asymmetric information and the credit crunch's weakness lead to the creation of a mechanism for the transfer of monetary policy under the title "Credit Channel ."

Based on the theory of the credit channel, the direct effects of monetary policy on interest rates are widened by endogenous changes in external finance Premium. According to the said theory, due to a change in monetary policy and the subsequent change in market interest rates, Cost of External Finance are affected in the same way. As a result, monetary policy has a widespread effect on borrowing costs, and its effect increases on real costs and on the performance of real economic variables accordingly. This mechanism is known as the Finance Accelerator, based on the theory of Bernanke and Gertler (1995).

2. Research methodology

To estimate the model, a dynamic stochastic general equilibrium model for the Iranian economy is taken into account by considering nominal stickiness. First, by using Christine and Dib's (2006) paper, the importance of finance accelerators to enhance and expedite the effects of shocks on the economy is evaluated using a dynamic stochastic general equilibrium model. Structural parameters are estimated in two ways in the model: a) a pattern that includes finance accelerators. B. a model without finance accelerators. Then the ability of each pattern is

evaluated in the description of the key data characteristics. For estimating these patterns, the Kalman filter is used to maximize accuracy. These two interpretations of the model result in the presence of the financial accelerator mechanism by using the likelihood ratio test to be tested economically. In this model, it is assumed that the economy has a price stickiness, capitalization adjustment, and financial market friction, and includes households, monetary authorities (central bank), and producers (entrepreneurs, capital producers, and retailers).

Some of the main changes in this article are that banks operate through a credit mechanism as a financial accelerator, in a manner that in a positive monetary momentum, interest rates dampened, and investment and employment increase. By reducing interest rates, net assets of all entrepreneurs will increase due to lower borrowing costs. With the net increase in the total assets of entrepreneurs, the external financing bonus decreases more and, as a result, production shows stronger reaction. Due to the stronger reaction of production, the volume of money absorbed by production gets more and inflation becomes less reactive.

3. Findings

In this paper, we use Dynamic Stochastic New-Keynesian General Equilibrium Model for sticker Prices to study the effect of the finance accelerator (banking system) on the economy. For this purpose, the model is estimated in two modes, with the existence of a finance accelerator (with effect of banking system) and without a finance accelerator (without effect of banking system), and its parameters are estimated using the studies and the revealed facts in DSGE templates literature. Subsequently, the effects of technological momentum, demand for money, investment efficiency, and monetary policy on macroeconomic variables are investigated. For example in a negative momentary momentum with the magnitude of the standard deviation estimated by inflationary conditions, because of the increase in real interest rates, the amount of consumption declines due to Euler's equation, and due to the increase in real wages, employment and investment decrease. Thus, with decreasing employment and investment, production will decrease; therefore, in the short term, the neutral hypothesis of money can not be accepted.

It should be noted that the major part of the changes in the variables studied in this research is due to the investment efficiency momentum.

In a recession in the Iranian economy, information asymmetry in the country's financing system leads to a reduction in the net wealth of economic agents as well as an increase in external financing (increased interest rates on loans). As a result, due to higher costs and reduced ability to borrow, the level of investment, costs, and production of the economic agent will decrease, and this cycle will be repeated and the recession will expand. Thus, banks create a financial accelerator through a credit mechanism.

Therefore, one of the most important results of this paper is that with regard to the banking sector in the economy due to financial friction and information asymmetry, the recession of the economy in one period exacerbates the recession in the coming period, which reflects the performance of banks. So the banks create financial accelerator through the credit mechanism.

Another consequence of this paper is that, in a situation where the economy is in recession, even with the banking system as a financial accelerator, the effect of the momentum on the demand side to resolve the recession is more effective than momentum on the supply side.

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