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Review

The role of monetary policies in exiting of 2008 financial crisis in Australia and Switzerland

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Abstract

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*Corresponding Author's E-mail: hadi9131@yahoo.com During a short time, with 2008 financial crisis that began in America's housing market, the gross domestic product of countries decreased and their unemployment rate increased. In order to exit from the crisis, various countries, including Australia and Switzerland adopted various policies that expansionary monetary policies means increasing of monetary base and reducing of interest rates, is one of them. The purpose of this research is studying on effectiveness of imposed monetary policies on gross domestic product of Australia and Switzerland during financial crisis of 2008. So is used of gross domestic product data, monetary base, effective exchange rate, interest rate and dummy variable in vector error correction model. Results indicate significant and negative impact of financial crisis of 2008 on both gross domestic product and incompetent of imposed monetary policies in these countries.

JEL Code: E40, E20, G01

Keywords: Monetary policies, Financial crisis, Systematic risk, Vector error, Correction model.

INTRODUCTION

The 2008 financial crisis was at the beginning of fiscal, but shortly turned into banking and liquidity crisis. Banks refused about credit and loans to each other and companies, also the danger of lacking liquidity damaged whole credit system and damaging of credit system impacts on economic situation. In order to deal with the financial crisis, countries' financial authorities depending on the rate of their economy influence have been done actions that could refer to some of them such as reducing of interest rates and increasing of monetary base.

This study seeks to answer the question of, how the imposed monetary policies were effective in Australia and Switzerland about controlling and exiting of 2008 financial crisis.

So different parts of this paper are as follow:

The first part reviews the theoretical foundations and conducted studies on monetary policies.

Theoretical foundations include studying on reasons of 2008 financial crisis, conducted measures by financial

authorities in some countries in order to deal with financial crisis and views of different schools about influence of currency. In the second part, there are related data to GDP (Gross domestic product), monetary base and interest rates about 2008 financial crisis of Australia and Switzerland. In the third section has been studied on effectiveness of imposed monetary policies on GDP of these two countries with using of vector error correction model. The final section is discussed on conclusion and adapted policies recommendations from article.

Theoretical foundations and literature overview

Economic recession

In macroeconomic recession means reduction of a country's GDP or economic growth rate of a country for a

consecutive period. In other words, if total supply is greater than total demand, the economic recession occurs.

Simultaneous with creation of recession in the economy also economic activities enter into a descending period that could refer to some important of them such as reduction of the employment rate, increasing of unemployment, reduction of investment, reduction of participatory profits and reduction of tendency to manufacturing and industrial activities.

The reason of financial crisis in 2008

First of all it should be mentioned that this crisis happened in beginning of financing then banking system then it appeared as economic recession. Nowadays, few people relate this crisis to indulgence, embezzlement and in appropriate management of financial managers.

Joseph Stiglitz and Edmund Phelps, Nobel Prizewinning American economist, believe that crisis origins of Subprime are from policies of Central Bank of America in period of Alan Greenspan's Presidency based on low banking interest rate, also lacking of controlling and public regulation on financial transactions. Low banking interest rate, easy money make easy to buying house. But for housing purchase, moreover person who need loan, should have appropriate savings for advance payment also should have enough income to pay the loan. Now if banks themselves give loan to them who do not have these conditions and insure their repayment of loans because of residential houses' mortgage so demanding for housing purchase increases highly. According to increasing of demanding also the prices of estate increases and this matter increases applicants of housing loans. Because according to low interest rate and easy condition for getting loans and high prices of buying house, worries about loan's repayment are not considerable.

According to increasing of houses' price than to the value of adopted loan, also economic true estimating confirms this matter, too. Nonetheless in this economic estimation one point is neglected. If debtors do not pay their debts and it does not be accidental but be from general aspect and moreover avoid paying debts by some maybe cause others avoid to pay their debts, means risk of failure to pay the loan which has systemic characteristic so many homes in the banking mortgage and financial institutions will be considered for sailing. Therefore, with housing extensive supply and reduction of its demanding, estate price will decline so that will not even repay the loans. In other words, whatsoever are intelligently for a person and in absence of systemic risk from the perspective of economic calculation is not intelligently for collection of persons and existence of systemic risk. In a scientific definition systemic risk is called as creation of economic condition which based on

rational responses of economic agents in response to the risks that are observed instead of better distribution of risk is about uncertainty and more instability. A simple example, special meaning of systemic risk clears its difference with other types of risk. If your neighbor in a residential complex has not ability to payment of debts and also he is owner of residential building as you, the risk of nonpayment of the current housing expenses by his will be increases your risk by charging more to pay. In this matter risk has systemic characteristic. Now with clarifying the concept of systemic risk we investigate its role in the 2008 financial crisis.

Encouraging Americans to get housing loans even those who could repay it, requires to insurance their loans. How this insurance perform? Insurance of banks' loan to individuals is performed through a third person in the transaction which insures risky loans and because of that receives fixed amount from the bank. By this insurance the investment banks like J.P. Morgan can remove non-payment risk from their accounting books and release their currency reserves, this type of insurance is called as Credit Default Swaps, that credit insurance is having non-payment high risk. C.D.S is one of the types of securities as toxic stocks which are financial derivatives. This types of financial item is including all risky loans, classifies their value to smaller parts then sales them. According to this matter, can insure the debts that are encounter with systematic risk, so way that will be insure the products without systematic risk. And hence, C.D.S is comprehensive of insurance's classic approach which warren Buffett Great American Capitalist called this as financial instruments for mass murder.

Despite the fact that for the first time in 2003, trades' index of this type of financial item was found in the stock market of United States of America, butin2004 and2008 transactions became so fast about this area that finally in the summer of 2008, the figure reached \$62trillion, while the volume of these transactions was nearly about \$100 billion in 2000.After the Great financial crisis of September 2008 the volume of transactions fell from 62 trillion to 55 trillion dollars. This figure clears amount and importance of determine this type of financial products in happening of 2008 financial crisis. There was not any governmental supervision on increasing of this type of financial instrument for C.D.S which today are now known as Toxic mortgage or Toxic Securities. The value of these products in the four years before crisis has been increased fourfold of New York stock exchange transactions has been based on wrong-way database about financed and repayment ability of loan applicants. This matter was not according to any laws. Therefore, two basic factors in the emergence of the financial crisis in 2008 are:

- 1. Low interest rate
- 2. The financial products out of any kind of public supervision and inherent systemic risk on them.

Table 1. The view of different schools about the impact of money.

School (ism)	View
Classical	Money is neutral and evacuates its effects merely in the nominal section of economic.
Keynesian	Money is not neutral, but there are many obstacles such as a liquidity trap and etc. on its effectiveness.
Monetarists	Money is not neutral in the short term, but is neutral in the long term.
New Classical	The unpredicted monetary policies affect on Production level and other real variables only in short-term.
Real Trade Cycles	Money is neutral and evacuates its effects merely in the nominal section of economic.
New Keynesian	Money is not neutral and the monetary policies are effectiveness.

Source: Moslehi F, (2006), impact of monetary policies on Iran economy from 1959 to 2004. J. Iranian Econ. Res. No. 27, pp. 137.

Trying to exit from the crisis

In this part, there are some examples of conducted measures by Fiscal authorities of different countries in order to exit from the2008 financial crisis:

In July 2008, two largest credit mortgage companies Fannie-Mae and Freddie-Mac were unable to pay their financial obligations for thousand five hundred billion dollars. Since many large companies such as pension funds, mutual assistance and foreign central banks have been invested in these two firms, the insolubility of America's financial system was depended on preservation of these two firms. Thus, in 7th September 2008, Fannie-Mae and Freddie-Mac became national and this nationalization cost reached to two hundred billion dollars. The danger of falling for these two great institutions also helping of two hundred billion dollars by Treasury to them was as milestones of the recent financial crisis.

On September 19, for first time, America's Treasury proposed the buying "toxic securities" for banks. The cost of this project that was supported by the White House and was known as the Paulson Plan 'Henry Paulson, the chief of America's Treasury' was more than 700 billion dollars. It should be say that, the purpose of government intervention in this period was not only the saving commercial banks, but also saving the insurance companies and investment banks which were as vulnerable circle of financial system.

In October 7, the ministers of Finance and Economy of European countries increased the bankroll up to fifty thousand Euros. This was the first common action from Europe Union. On the eighth of October, Central Banks of the United States of America, Europe Union and other their counterparts in Canada, Great Britain, Sweden and Switzerland reduced simultaneously the banking basic interest rate by half a percentage point in order to guarantee the banking credits and necessary liquidity for financial system.

Finally, on October 13, fifteen European countries after several weeks on Gordon Brown's Conversation and consultations Merkel and Nicolas Sarkozy at the Elysee found a plan that was not based on buying "toxic securities" unlike Paulson plan. But the aim was injection of capital into European banks up to €1300 billion Euros and its nationalization, if it was necessary.

Views of different schools about the impact of money

Different mentioned views about neutrality of money have a significant difference with together according to assumptions that formed intellectual infrastructure of each of macroeconomic schools. These views involve wide range, including the full effectiveness of monetary policies also their ineffective. (Table 1)

Literature Overview

Ghossoub and Reed (2010), in their co-study by describing of the meaning of the Financing liquidity risk, wanted to explain about asymmetric effects of monetary policies in different countries. Financing liquidity risk means the risk of Investor's inability in him financing situation. Now as regards liquidity risk has an inverse relationship with capital formation or investment so can realize to asymmetric effects of monetary policies in different countries. In the countries with weak financial systems and which have high liquidity risk so the expansionary monetary policies lead to capital formation and do not lead to production growth and in the countries with low liquidity risk like developed countries, it is possible that expansionary monetary policies lead to production growth. As a result, optimal monetary policies depend on a country's development level.

Berument (2007), in their study has been analyzed the effects of monetary policies in Turkish economy. In this paper he used of monthly data of Turkey for years 1986 to 2000 and five GDP variables, index of consumer price, exchange rate, interbank interest rate and the volume of money. The used model in this study is Vector Auto regression model. The results suggest that, monetary policies have temporary effects on GDP and shortly when are significant statistically, the impact of this policies is permanent and stable.

Jefferson (1997), he was studied on neutrality of

money with separation of money into two parts, external money 'monetary base' and internal money 'Demand deposits account'. He believed that investigation of effectiveness of money on the real production level caused removing the possibility of careful analysis. Because according to his opinion also according to mentioned resources in his paper the external money enable be effective on production level, but it is possible that occurred changes in the internal currency because of changing in interest rate be such that neutralized all imposed effects by external money on production finally lead to the neutrality of money. So in his research, the variables of real and nominal national production variables, GDP price index also demand deposits and monetary base in years 1900 to 1992 were considered as variables and placed them into VAR mode. In the that were estimations done from this model. neutralization of internal money was considered, although their value is very small but has statistical validity.

Moosa (1997), in his paper with using of seasonal data about 29 years for the economy of India studied on seasonal co integration test and HEGY technique. The results of this study confirmed the super neutrality of money on India's economy. In performing of this analysis, he used of three national variables including, the volume of currency, circulation coins and consumer price index and results were about lacking of long-term relationship between money and National production level based on the lacking of co integration relation between these two variables and existing of short-term and long-term relationship between money volume and the level of prices based on co integration relationship between these two variables.

An overview of the data

Direct consequences of financial crisis of 2008 were declining of GDP, creation of liquidity crisis, bankrupting of economic firms and increasing of unemployment rate in many countries and these effects influence on Australia and Switzerland and also in these countries expansionary monetary policy is widely used.

In this part, are mentioned the impact of the 2008 financial crisis on GDP of Australia and Switzerland and conducted measures by the fiscal authorities of these countries in order to deal with the financial crisis.

The GDP of Australia in fourth season for 2008 year was about 283.96 billion dollars that this value is declined to 275.66 billion dollars in second season for 2009 year which is equal to 3% reduction in GDP during 2 seasons of year.

Reserve Bank of Australia, in order to exit from the crisis, increased monetary base from 48.67 billion dollars in second season of 2008 to 83.73 billion dollars in fourth season of 2008, means increased the monetary base about 172%.

Also policy of interest rates reduction is considered in order to deal with financial crisis. So interest rates in Australia which was about 7.25% in second season of 2008 decreased to 3% in the third season of 2009.

The GDP of Switzerland was about 131.23 billion francs in the third season of 2008 which declined to 127/93 billion francs because of financial crisis in the second season of 2009 that is equal to3% reduction in GDP in during 3 seasons. Swiss financial authorities, in order to deal with the financial crisis increased the monetary base from 47.79 billion francs in third season of 2008 to 118.33 billion francs in the first season of2009 which is increasing of 247% in monetary base during 2 seasons.

Another monetary policy was policy of interest rates reduction so that the interest rate in the third season of 2008 was 3.25% that after the financial crisis and in order to deal with it, declined about 0.75% in the first season of 2009.

The analysis of model

Stipulation and identification of the model

Hakan Berument in 2007 studied on the impact of monetary policies on the real and nominal economy of the Turkey. He used of variables such as GDP, index of consumer price, exchange rate, interbank rate and the amount of money. Since the purpose of this paper is to estimate the effect of monetary policies on the real economy during the 2008 financial crisis in Australia and Switzerland, so we used of model similar to Hakan Berument's pattern, with this difference that according to the condition of the 2008 financial crisis and the purpose of this paper some of the variables maybe added or omitted. So the used variables in this paper include: real GDP, real monetary base, real effective exchange rate, real interest rate and a dummy variable that because of appearance of 2008 financial crisis entered into the model.

Thus, the used logarithmic form of this model is:

 $LnGDP = C_0 + C_1LnMB + C_2LnREER + C_3 RR + C_4 D$ There are:

LnGDP: logarithm of real GDP according to each country's currency in constant price of 2005 year as dependent variable

LnMB: logarithm of real monetary base based on each country's currency in constant price of 2005 year

LnREER: logarithm of real effective exchange rate in constant prices of 2005

RR: real interest rate which is equal to difference of nominal interest rate and inflation

D: dummy variable that in season when the financial crisis occurred was one and in other season is zero.

The data are as seasonal from the first season of 1990 to second season of 2011. The references of all

 Table 2. The results of augmented Dickey-Fuller unit root test for level and difference of model's variables for Australia.

Variable	RR	LnREER	LnMB	LnGDP
Statistics of Augmented Dickey-Fuller at data level	-2.58	-0.50	-2.23	1.64
Statistics of Augmented Dickey-Fuller with once difference	[*] -9.72	*-7.32	^{*-} 10.69	[*] -6.30

MacKinnon critical values at 1, 5 and 10% are respectively -3.51, -2.89 and -2.58 *Variables are static at the one percent in assurance level.

Source: Eviews6 outputs based on author's calculations.

Table 3. The results of Augmented Dickey-Fuller unit root test for level and difference of model's variables for Switzerland.

Variable	RR	LnREER	LnMB	LnGDP
Statistics of Augmented Dickey-Fuller at data level	-4.16	-2.11	-2.29	0.811
Statistics of Augmented Dickey-Fuller with once differentiation	[*] -7.16	*-7.21	[*] -3.60	[*] -4.19

MacKinnon critical values at 1, 5 and 10% are respectively -3.51, -2.89 and -2.58

*Variables are static at one percent in assurance level.

Source: Eviews6 outputs based on author's calculations

figures about above variables for Australia and Switzerland are from International Monetary Fund.

In order to estimate the mentioned pattern and studying on effects of monetary policies on GDP is used of Vector Error Correction Model that is one of the time series' models. In this model is used of combination of long-term information with short-term adiustment mechanism. In other words, short-term volatility of a variable related to its long-term amount. In this model, studying on variables' static and stationary, the determination of the optimal lag length and co integration between variables is very important. In the vector error correction model, the residual terms resulted by the co integration equation are used as a variable and its coefficient 'ECM' dedicated as a short-term adjustment coefficient. The value of this coefficient is placed between minus one and zero and is connector between short-term volatility and long-term value of a variable.

Unit root test and determining of optimal lag length

Augmented Dickey-Fuller unit root test, examines the hypothesis of existence the variable's unit root against to its static mood. This test was performed for all variables in the model for Australia and Switzerland that the results are summarized in Table 2 and 3.

The results show that all model's variables are not static in the data level, but repeating the test about data difference shows that all these variables after one difference rejected the no stationary at levels 1, 5 and 10% and become static. Thus, all of the integrated selected variables are one degree or I (1).

The optimal lag length for Australia base on Akaike criteria (AIC) and Final Prediction Error (FPE) is 4 and base on Hannan - Quinn (HQ), Schwarz criteria (SC) has

been selected 1. Given that among existing criteria for determining the optimal lags, Akaike criterion is more suitable for seasonal data, so forth lag is selected as model's optimal lag for Australia.

The optimal lag length for Switzerland base on Akaike criteria (AIC), Hannan - Quinn (HQ) and the Final Prediction Error (FPE), has been selected 5.

Johansen Co integration test

Johansen Co integration test with using of Maximum likelihood estimation's method enables the researcher to estimate the co integration vectors as no static for time series. Johansen and Osterwald-Lenum suggested two Trace Test and Maximum Eigen value Test for determining the numbers of co integration vectors. There is one co integration vector among the variables of model for Australia and Switzerland according to both Trace Test and Maximum Eigen value Test. In other words, there is a linear combination of the variables which stationary is one degree that stationary or accumulation is zero degree, so without considering to false regression could estimate the regression at the level. The results of test are summarized in Table 4 and 5. In these tables, r indicates the number of co integration vectors and whenever the statistic of test is greater than the critical amount the null hypothesis is rejected at 5% level based on lacking of at least one co integration relationship between model's variables.

Long-term and short-term coefficients after estimation of the model in Australia

The long-term coefficients after estimation of the model in

Maximum Eigen value Test		Trace Test		opposite	null
Critical values	test statistic	critical values	test statistic	hypothesis	hypothesis
28.58808	39.78346	54.07904	69.47230	r>0	r=0
22.29962	13.46666	35.19275	29.68884	r>1	r=1
15.89210	10.34527	20.26184	16.22218	r>2	r=2
9.164546	5.876911	9.164546	5.876911	r>3	r=3

Table 4. Test result of the Johansen Co integration for Australia.

Source: Eviews6 output based on author's calculations

Table 5. Test result of the Johansen Co integration test for Switzerland.

Maximum Eigen value Test		Trace Test		opposite	null
Critical values	test statistic	critical values	test statistic	hypothesis	hypothesis
32.11832	40.01573	63.87610	87.55849	r>0	r=0
25.82321	23.62213	42.91525	47.54276	r>1	r=1
19.38704	14.23365	25.87211	23.92063	r>2	r=2
12.51798	9.686978	12.51798	9.686978	r>3	r=3

Source: Eviews6 output based on author's calculations

Australia are as follows:

LnGDP = -2.20 + 0.44LnMB + 1.38LnREER - 0.09RR - 0.19D

t : [-3.70][-6.32][7.24][2.89]

According to the t statistic, coefficient of monetary base is significant and is 0.44 which means that increasing of one percentage in the monetary base caused to 0.44% unit increasing in GDP. According to t statistic the coefficient of the real effective exchange rate is significant and its amount is 1.38 which means that imposed exchange rate policies have positive impact on economic growth in long-term in Australia. Also, according to the t statistic, the coefficient of the real interest rate is significant and is -0.09 which means that reduction of one percentage in real interest rate caused to 0.09% unit increasing in real GDP. The D Dummy variable has a numeric value -0.19 is significant statistically that shows negative impacts of 2008 financial crisis on real GDP of Australia. F-statistic is 4.42 that indicate the significance of the regression.

In fact, ECM or error correction coefficient is the shortterm coefficient of the model that shows adjustment speed towards long-term equilibrium. This coefficient shows that what part of imbalance in the dependent variable of previous period is corrected in the current period. It is expected that the sign of this coefficient is negative and its value may change from minus one to zero. ECM indicates the speed of error correction and tendency to long-term equilibrium. This coefficient estimated about -0.03 for Australia which shows that imposed expansionary monetary policies by financial authorities of Australia can be corrected only 3% of created imbalance about real GDP for Australia due to financial crisis of 2008 and in other word, this coefficient shows that speed of error correction and tendency to long-term equilibrium is only 3% that it is very small and it is because of incompetent of monetary policies in the short term.

Long-term and short-term coefficients after model's estimating in Switzerland

The long-term coefficients after model's estimation in Switzerland are as follows:

LnGDP = 13.97 + 0.72LnMB - 2.57LnREER - 0.07RR - 0.54D

According to the t statistic, the coefficient of monetary base is significant and its amount is 0.72 which means that increasing of one percentage in the monetary base caused to increasing of 0.72% in GDP. Based on t statistic, coefficient of the real effective exchange rate is significant and is about -2.57, which means that imposed exchange rate policies have negative impact on economic growth in Switzerland in long-term. Also, according to the t statistic, the coefficient of the real interest rate is significant and its amount is -0.07 which means that reduction of one percentage in the real interest rate caused to 0.07% increasing in real GDP. The amount of D Dummy variable is -0.54 which is significant statistically which shows negative effects of financial crisis 2008 on real GDP of Switzerland. The amount of F-statistic is 5.44, which shows significance of the regression.

Also, ECM or error correction coefficient was -0.02 in Switzerland that indicates only 2 % of created imbalance in the depended variables during previous period corrected in current period. In other words, the imposed expansionary monetary policies by Swiss financial authorities can be corrected only 2% of created imbalances in real GDP about each period because of financial crisis 2008 which is very small and indicates inefficiency of monetary policies in the short-term.

CONCLUSION AND THE POLICIES RECOMMENDATIONS

Conclusion

This paper examines the causes and origins of the 2008 financial crisis and the impact of imposed expansionary monetary policies on GDP of Australia and Switzerland during the financial crisis. In this study, is used of data for real GDP, real monetary base, real effective exchange rate, real interest rate and a dummy variable. The used model in this paper is the vector error correction model which is as time series. The results of model's estimation can be summarized in the following sections:

1. The negative and significant impact of 2008 financial crisis on GDP of these countries in the long-term

2. The positive effect of imposed exchange policies on GDP of Australia and negative effect of these policies in Switzerland in long-term

3. The more influence of monetary base increasing than reduction of interest rates on GDP of these countries in long-term

4. Very small amount ,maximum -3% for the ECM or error correction coefficient which indicates incompetent of expansionary monetary policies in the short term that this result cannot be verified the perspectives of monetarism who believe that formation of expectations are as comparatively and considered significant role for monetary policies in the short-term. So can say that the result of this study can be as verification on perspective of New classical, that they believe that with considering the formation of expectations as rationally, monetary policies do not have any effect on production and other real variables not only in the long term, but also in the short-term. Based on the opinions of this group, only the unanticipated monetary policies effect on production level and other real variables in the short term.

Policies Recommendations

In the two past decades, we could see the financial crisis in different countries. Wide conjunction of capital markets in the world reduces constraints and difficulties arising from lacking of funds about nationally level. But this financial system as well as speeds the entrance of capital, at the time of risk happening and the first signs of the declining of securities' value leads to fast exiting of funds and may have chain danger and sudden dropping of valuable index in the world stock markets. According to lack of effectiveness of the monetary policies can offer the following suggestions:

1. Need to overview, more effective and more efficient supervision on financial markets

2. Realization of this matter that the boom power of market's mechanism is gradually but its destructive power is in a moment. So this requires a comprehensive plan or a suitable position for controlling it.

3. Designing a timely warning system till could adopt necessary measures to deal with it when the first signs of the financial crisis appeared.

4. With increasing of countries like China, India and Brazil in the global economy, review on Bretton woods financial system should be consider.

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