

## **The Excess Liquidity of the Open Economy and its Management**

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### **Abstract**

The excess liquidity of the open economy has become one main factor influencing the monetary markets, financial markets and even the whole macroeconomic. In era of the post-crisis, many countries have implemented the loose monetary policies, especially the quantitative easing policy in the U.S. which worsened the situation of the excess liquidity. Under this background, it will be more meaningful to study the excess liquidity of the open economy and its management for the developing countries' economic recovery and development, inflation control, economic structural adjustment and optimization and the stability of the social economy.

This paper starts by deep study of the related theories of the excess liquidity and the transmission mechanisms and then has an analysis on the current situation and cause of the excess liquidity in the BRICs which is taken as the representative for the developing countries. And then it comes up with the point that the main cause of the excess liquidity in the developing countries is the financial system, including loose monetary policies, financial innovation, petrodollar, East Asia dollar, US dollar hegemony, overcapacity, trade supply, savings supply and the surge of foreign exchange reserves etc. With the help of the Impulse response model from the VAR model, this paper analyzed on the impact of global liquidity surge to America, the euro zone, Japan, China, India, Russia, Brazil etc. and came to a conclusion: 1. The global excess liquidity keeps increasing. And its speed in the developing countries is fast while slow in the developed countries. 2. The spillover effect of the global excess liquidity spreads mainly through GDP and price. And for most countries, the international factor has more influence on the rising price than the domestic factor. Besides, the GDP has also been affected to fast grow which in turn becomes the main driving force of quantity increase of money. 3. The openness and development level of the economy is not the decisive factor in the excess liquidity's spillover effect. However, the structure of the macroeconomics and the management level discrepancy are the root causes of the influence difference among countries. Last but not least, combining the new situation of the International economy and the current situation in developing countries, this paper raises some suggestions.

**Keywords:** Excess Liquidity, Open Economy, Inflation, Discretion

**JEL Classification:** E31, G33

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## 1. Introduction

As the economic globalization and financial globalization continue to deepen, a country's excess liquidity has infectivity, which is easy to spread to the countries with closer economic exchanges and evolves into a universal and international excessive liquidity. The problem of international excess liquidity began to appear in 1997, money supply increased significantly, social available funds was supply largely, direct investments and foreign reserves of most countries increased significantly, the money supply and inflation expectations could not be absorbed by nominal GDP and short-term interest rates completely, the instability of finance and economy became worse and Marshall K of world main economy displayed increasing tendency. The Marshall K of the United States, Euro Area, Japan, Russian, India and Brazil had been increased by 7.7%, 33.2%, 11.6%, 11.3%, 28.7% and 22.0%, which had been paid more attention of countries.

In 2007 the American subprime crisis caused financial crisis and world main economy was immersed in economic depression. At the same time, the excess liquidity occurred changeover and liquidity inadequacy appeared in some countries, especially in developed countries. In order to save the financial industry of serious loss, revive the economy, increase the employment and ensure the social stability, G20 countries reached an agreement on the extremely expanding loose monetary policy that the United States, Euro Area, British and Japan dropped the interest rate to almost zero, which quickly turned the shortage of liquidity. Despite the lending willingness of the financial institutions decreased greatly which reduced the derivative deposit after the crisis, enterprises and residents decreased the investments and consumption expenditure because of their lower incomes and money demand reduced faster than money supply. It leads an interesting phenomenon that the excess liquidity did not turn into liquidity shortage and the Marshall K continued to rise in the post-crisis period. The liquidity of America, Euro Area and Japan increased by 13.2%, 8.8% and 14.0% from 2007 to 2009. The decrement of liquidity demand was more than that of liquidity supply, so the liquidity was in the excessive condition. In

addition, a large number of hot money poured into the emerging market countries, which worsen the fluctuations of the economy and caused the serious inflation pressure. The Marshall K of the "BRICs" had increased by 13.4% on average from 2007 to 2009 and the problem of the excess liquidity was more serious.

As the impacts of the financial crisis continue spreading in 2010, the world economy is still immersed in low confuse condition. The European sovereign debt crisis has intensified the international economic fluctuations and looser monetary policy is still the dominant policy of countries for economic recovery, particularly the quantitative easing monetary policy of the United States worsening the excessive liquidity. As a result, developing the economy, the emerging market countries are faced with the serious liquidity pressure. To sum up, the problem of the excess liquidity still exists and is becoming more serious in the post-crisis period. This paper will start with the transmission mechanisms of the excessive liquidity and analysis the influence of international excessive liquidity on the United States, Euro Area, Japan, China, Brazil, South Africa and Russia.<sup>2</sup> Then comparing the economic responses of countries with different economic systems, economic structures and management modes when suffering the external shock of international excess liquidity, we can open the mind, weigh the pros and cons and raise some effective measures to manage the excess liquidity.

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<sup>2</sup> Because the statistics data of India is incomplete and difficult to make the quantitative analysis, our analysis uses South Africa instead of India in the "BRICs".

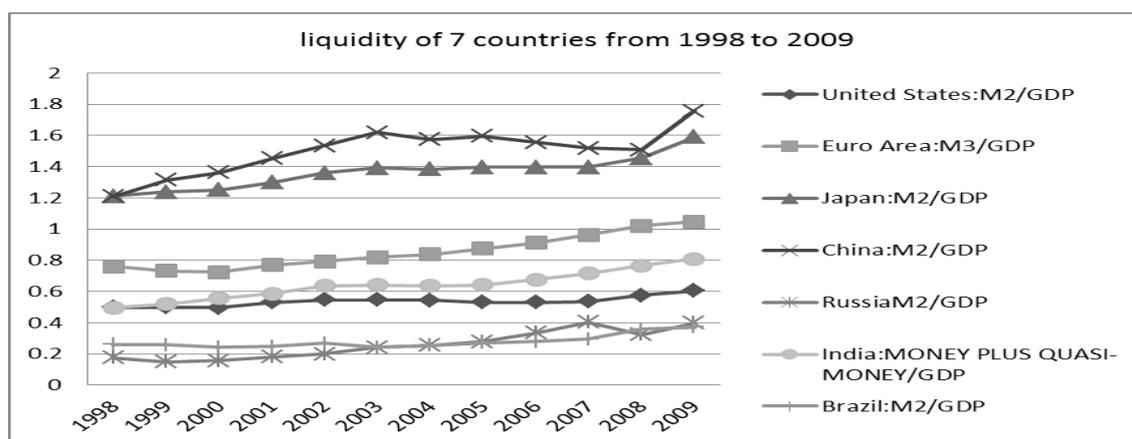


Figure 1: Liquidity of seven countries from 1998 to 2009.

Data Resource : IMF International Financial Statistics

## 2. The international excess liquidity and its measurement

Excess liquidity is a kind of phenomenon in which the governable currency of an economic body is more than its need. In the financial system led by banks, excess liquidity is usually found when the banks willingly or unwillingly cash reserve is much more than the required level of sound banking standards (Hanson,1977), and also the difference between deposits and loans enlarges, the loans available is in huge amount. In macroeconomic perspective, excess liquidity means that money supply exceeds the aggregate needs of effective economy and anticipated inflation (Schinasi and Hargraves,1993) and could not be absorbed by nominal GDP and short-term interest rate (Rüffer and Stracca,2006).

The money supply compared with nominal GDP is the common index to measure the status of liquidity. If the money supply exceeds the nominal GDP, that means exist excess liquidity. Annick argued that the currency gap, the deviation of the value of M2/nominal GDP and its trend surface, can be used as a measurement. If the currency gap exceeds a designated critical value (say 3.75%), it means that excess liquidity appears in the economy (Annick Bruggeman, 2007 ). From the perspective of the efficiency of financial market, excess liquidity means that liquidity supply exceeds liquidity demand and there are underlying inflationary pressures, which cannot be absorbed by products and price. Excess liquidity exists definitely if interest rate continues to drop, and on the contrary the prices of real estate and stock continue to rise. Excess liquidity measured by money supply reflects all of the characteristics of expansionary monetary policy,

(Rüffer and Stracca, 2006), but not by interest rate, because the influence of interest rate in short run on output and price is restricted by financial institutions, financial market structures and openness. Therefore, excess broad money<sup>3</sup> is used to measure excess liquidity in the international academic community.

Since 2000, the expansionary monetary policy of developed countries, the continuous increase of oil prices and the growth of trade surplus of Asian countries has led to a result of the global excess liquidity. American subprime mortgage crisis break out in August, 2007. The default ratio on mortgages was over 10% and Stocks and housing markets were also down sharply. The wealth effect of American economy disappeared and its GDP decreased by 3%. In order to reduce the adverse effects of crisis, the Federal Reserve repeatedly cut interest rates from 5.25% in Sep. 2007 to 3% now, whose interest rates were significantly upside down. The main developed countries commonly started to cut interest rates substantially and injected liquidity into the markets. Low interest rates provided low financing cost to hedge fund. etc. As a result, much money detaching from the circulation of the real economy turn to pursue high-risk assets, which pushed up the valuation of global assets and stimulated fixed asset investments. Because of the increased value of collaterals, banks kept on expand the credit scale. More and more funds poured into the speculative market and the price of global assets and commodities increased sharply. In addition, the trade surplus of Asian

<sup>3</sup> The growth rate of excess broad money= nominal money growth rate- nominal GDP growth rate.

countries kept on widening and the foreign reserves reached 3700 billion dollars in 2006; the export revenue of oil-producing countries was growing exponentially because of the rising oil price. According to McKinsey Global Institute, the amount of petrodollars pouring into international financial market was up to 3800 billion dollars. With the combined influence of these three factors, global excess liquidity became more serious. Among them, the main reason is the loose monetary policies of the developed countries, whose contribution is over 70%. When most countries find the problem of excess liquidity, the common factor "global excess liquidity" must exist (Sousa and Zaghini, 2006), which has the impact on various countries in the wave of globalization.

The economic aggregate of United States, Euro Area, Japan, Britain and Canada (G5), which has accounted to 80% of the world, represents the international economic environment. Thus total excess money of G5 can be used as a measurement of international excess liquidity.

### 3. The spillover effect of the global excess liquidity

In the world of the economic and financial globalization, a country's excess liquidity will quickly promote or do harm to other country's economy through trade, capital flows. In general, for those countries with a fixed exchange rate, the global excess liquidity has brought the output effects of monetary expansion policy. The specific mechanism is as follows: the quantity of foreign currency increases → foreign GDP increases or price increases → domestic exports increases → domestic GDP increases; Meanwhile, the country's foreign exchange reserves increased → the central bank was forced to put money into market to maintain the exchange rate → the quantity of domestic currency increased → GDP increased / price increased. For the countries with floating exchange rate system, the global excess liquidity has brought the negative effect to other countries. The reason is as follows: the quantity of foreign currency increased → foreign GDP increased or price increased → domestic exports increased → domestic currency appreciation → domestic imports increased → domestic GDP declined. Under the background of price rigidity

and irreplaceable international assets, countries with the floating exchange rate system will also have the mutual beneficial trans effect: foreign currency increased → foreign GDP increased or price increased → national exports increased → domestic currency appreciation → the viscous pricing expectations increased → the interest of domestic assets decreased → the current goods are cheaper than those in the coming future → demand for local and foreign countries increased → domestic GDP increased (Obstfeld and Rogoff, 1995)

The effect of the global excess liquidity to a country is mainly reflected in three aspects: GDP, the quantity of money and prices. And the price can be divided into commodity prices and asset prices. The global excess liquidity has set up a loose monetary environment overseas for a country. This environment not only will help rapid recovery of the national economic downturn, but also will provide an excellent opportunity to help solve the problem debts left from history for some countries. For example, many state governments in the area of the western and southern of the United States use the excess money to increase investment in education, building roads, improving public infrastructure; Russia has paid off a huge amount of debt and accelerated economic restructuring adjustment; China has accelerated the transfer of rural labor and urbanization construction and speeded up the social security system construction. However, the global excess liquidity will stimulate the rapid expansion of loans, leading to rapid growth in prices and asset prices to the countries which has strong investment, fast economic growth, low interest rates and low inflation. Six of eighteen countries have the asset price surge because of this reason (Bruggeman, 2007). Besides, excess liquidity is not sensitive to the monetary policy. If there are a lot of excess liquidity in banks, the effects of the monetary policy regulating demand will be greatly reduced (Saxegaard, 2006).

In reality, many central banks have followed the "camera decision-making" theory which adjusts monetary policy based on the exchange rate and domestic price changes. They intervene the exchange rate and implement the neutral policy to offset the impact of global excess liquidity, ensuring their GDP and prices are "insulated" protected. However, due to the specific conditions and differences in monetary

policy management in different countries, the economic impacts of the global excess liquidity are totally different. For example, the dollar's international reserve currency status gives some kind of privilege to the United States. In addition, the U.S. government has always been pursuing egoism departmentism, which makes its economy have a good immune system to external shocks and have little impact on the quantity of its currency and the prices. Japan, with the unsuccessful monetary policy, strengthens its fiscal policy, intervenes in the foreign exchange market, brings exchange rate policy to play a regulating role of trade and capital flows, which also helps the Japanese economy avoid the adversely effect of the global excess liquidity. In contrast to the United States and Japan, the ECB's money quantity, price, and GDP growth have been deeply affected by the excess global liquidity because of the different interests driven among them, poor flexibility and timeliness and lack of a unified monetary policy. Global excess liquidity has driven the prices rise by 73% in the Euro Zone, and also pushed its stock and property markets integrated asset prices raised by 17% (Rüffer and Stracca, 2006).

The spillover effect of the global excess liquidity is more obvious in the countries with more free flow of capital, higher economic openness. One study found that in developed countries, there is a "common" driver in the liquidity growth, whose influence is between about 20-50% (Rüffer and Stracca, 2006). In developing countries, the impact of the global excess liquidity varies due to the difference in internal market maturity and economic development models. The money quantity were dramatically driven to grow in China, India, Russia, South Africa and other large developing countries by the global excess liquidity. At the same time, it also stimulates the fast growth of the GDP in the euro area. The economic performance for those eight largest economies in Latin America is totally different from that in the euro zone. With the background of the United States implementing expansionary monetary policy, the interest rates in the Latin American countries and the euro-zone, which both work closely with U.S. in the fields of trade, are correspondingly decreased. The consumption and investment in the euro area were stimulated to increase by low interest rates which brought GDP growth. However, in the Latin American countries, the low interest rates have stimulated the outflow of

capital and decline in investment which lead to the decrease in GDP (Canova, 2005).

#### **4. The causes of emerging market countries' excess liquidity**

Emerging market countries, notably the "BRICs", have been faced with the problem of excess liquidity that the quantity of money grows quickly and inflationary pressures are serious since 2004. The causes of Emerging Market Countries' excess liquidity are as follows.

##### **4.1. Global expansionary monetary policies**

Excess liquidity is essentially a monetary phenomenon. Therefore, the immediate cause is that the main economies, which own the right to international currency release, implement active monetary policy. The developed countries are pouring into the fluidity to markets by lowering the interest rates and increasing money supply. As a result, liquidity supply exceeds liquidity demand and international excess liquidity appearing.

##### **4.2. Financial innovation accelerates liquidity expansion**

In the last 20 years of 20 century, the progress of information technology and the economic globalization set off a wave of financial innovation in the international financial field. Financial innovation improves the efficiency and has given great push to the improvement of economy. Some innovative products make terms and bounds ambiguous, which fundamentally change the liquidity of loan assets and transform illiquid assets into highly liquid assets. In this round of financial innovation, asset securitization and finance electronization improve the mechanisms of liquidity and play an important role in promoting the expansion of liquidity supply.

##### **4.3. Petrodollar**

Petrodollar is the fund surplus of petroleum exporting countries' oil revenues deducting domestic expenditure. Promoted by the rapid growth of global economy, the price of oil has jumped sharply since 2002. The oil export of OPEC in 2008 is 1002.186 billion dollars.<sup>4</sup> As oil revenues increase rapidly, OPEC has accumulated the massive foreign exchange reserves. Figure 2 shows that OPEC's reserve assets increase significantly and the total volumes grow over

<sup>4</sup> Data resource: OPEC Annual Statistical Bulletin 2009.

eight times. Most of the petrodollars are deposited in European banks or back to main international financial markets through national sovereignty

funds. Therefore, petrodollar cycling becomes one of the important sources to increase international liquidity.

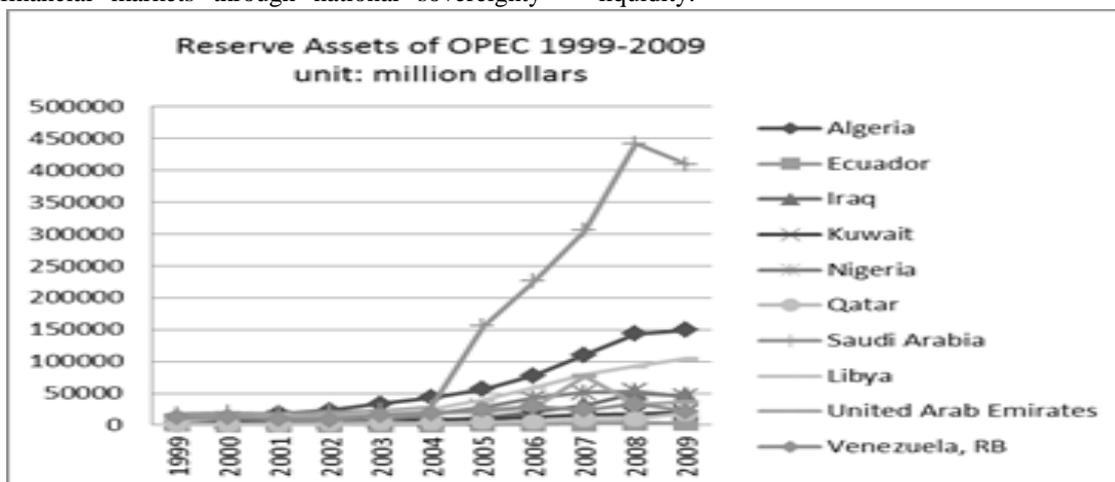


Figure 2: Reserve Assets of OPEC from 1999 to 2009

Data resource: World Bank-World Development Indicators

#### 4.4. Dollar Hegemony leads to the proliferation of liquidity

A phenomenon is born out of a mechanism and a mechanism comes of a system. The systematic reason for international excess liquidity is the asymmetric monetary system with the monopoly rights to currency release now.

From the economy, top six countries (2006) are the United States, Japan, Germany, China, Britain and France; from the foreign trade the United States, Germany, China, Japan, France and Britain are the top six countries (2006). However, from the right to issue currency the top six currencies in the international settlement and foreign exchange reserve are US dollar, Euro, Japanese yen, Swiss franc, Hong Kong dollar and Canadian dollar. Under the symmetry between currency and economy, the countries owning the right to issue currency can collect the international seignior age, the cost of that is to issue excess money and lead global excess liquidity. Dollar Hegemony is a typical case.

#### 4.5. Higher saving of the income of residents

The covering rate of the basic endowment insurance and countryside medical insurance are very low in developing countries. Families have heavy burden of housing, medical care and children education. Residents have to save more and consume less to cope with the uncertainty in the future, although their income has increased fast. This caused the excess liquidity of the banking industry since the growth rate of deposits is faster than that of loans.

#### 4.6. Rapid increase in foreign exchange reserve

Since 1980's, low value-added industries were transferred from developed countries to developing countries. In the process of industrial department adjustment in the world, Emerging market countries become the world manufactory with the advantage of cheap labor, and the trade supply increased tremendously while attracting the most direct investment in the world. Since 2002, the foreign exchange reserve has increased rapidly, which lead to the excess money supply.

#### 4.7. Speculation of hot money

In the past ten years, the developed countries have poured tremendous money into international financial market. For example, a zero interest monetary policy started after the thrust of Japan's economy bubble; the US Federal Reserve lowered its interest rate many times after "9•11", and Euro central bank did the same thing, these made the interest rate of the main developed countries reach the lowest level after World War II. Besides, the oil price rose from \$10, 1999 to \$100, 2007, and the Gulf countries injected high up to 4 trillion US dollars into financial market. The global excess liquidity provides good opportunity for speculation. Tens of billions of hot money flowed into emerging market countries to earn risk-free interest, which enhanced their excess liquidity.

#### 5. The responses of various countries' economy to G5 excess liquidity impulse

In order to analyze the changes of GDP, monetary currency and price after the impulse of international excess liquidity in various countries

and insure indexes comparable, the data of this article are mainly gathered from the IMF digital disc of 2007 and the others are collected from the website of OECD, England Financial Times website, and China's State Administration of Foreign Exchange, State Statistics Bureau and State Securities Regulatory Commission. All these data are collected at a quarterly frequency, over a sample period from 1995Q1 to 2006 Q4. The paper takes the U.S., Euro area<sup>5</sup>, Japan, Britain and Canada as the international economy environment as G5 and analyzes the influences of international real GDP, price<sup>6</sup> and excess liquidity on the United States<sup>7</sup>, Japan, Euro Area, China, South Africa, Brazil and Russia. When calculating excess liquidity, we regard it as broad money, by using IMF's index called "money plus quasi money". As Euro Area has not this index, we replace it by its M2.

**5.1. The changes of excess liquidity in various countries**

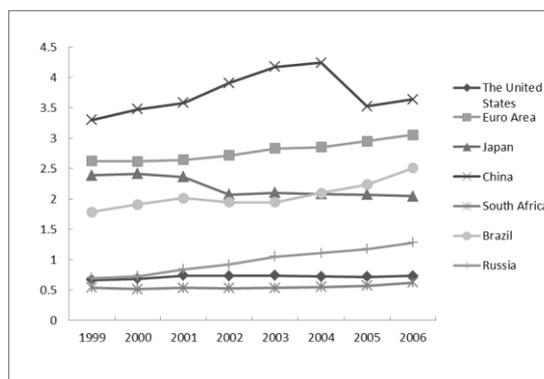
As figure 2 shows, the differences of broad money/nominal GDP are large in various countries. The percentage of South Africa, the United States and Russia is less than 1; the proportion of Euro Area, Japan and Brazil is between 2 and 3; China has the highest rate, which is over 3.5. This coincides with the analysis of Shuangning (2007). The primary cause is the differences of the economical monetization degree, payment system and residents' liquidity preference in various countries. Therefore, Marshall K is inferior comparable, which cannot be used to judge the level of excess liquidity simply. However, its growth rate expresses the changes of excess liquidity and is available for international comparisons. Besides Japan, the excess liquidity of various countries has the growth of different level (Figure 3). Among them, Russia has the rapidest growth, whose year all amplitude exceeds 9.18%; the slowest is the United States with the amplification of 1.38%;

<sup>5</sup> Data of Euro area is used directly after the birth of Euro since 1998. Because the GDP of 8 countries including Germany, France, Italy, Holland, Belgium, Denmark, Spain and Portugal account for more than 90% of the output in Euro area, this article use the sum data of these 8 countries before 1998, and it is believed that it can keep the data consistent.

<sup>6</sup> GDP Deflator can be used to express price.

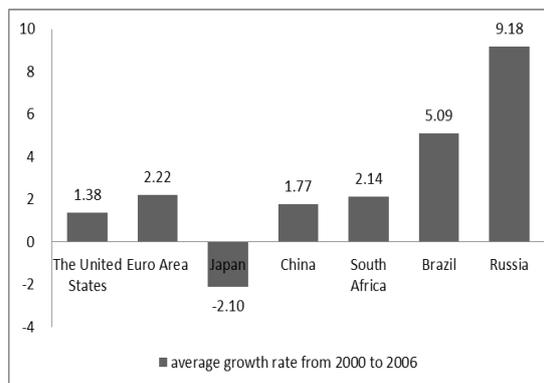
<sup>7</sup> The international economic environment for the United States is G4 deducting the United States. Accordingly, the international economic environment for Euro Area is G4 deducting itself. Japan's international economic environment is G4 deducting itself.

China has the slowest year all amplification of 1.77% among the four developing countries, which is less than 2.22% of Euro Area.



**Figure 3: Broad Money/ Nominal GDP in Various Countries**

**Data Resource : IMF International Financial Statistics**



**Figure 4: Average growth of Marshall K from 2000 to 2006**

**Data Resource : IMF International Financial Statistics**

**5.2. Comparing the responses of various countries' economy to G5 excess liquidity impulse**

The global liquidity increase, one part of which is absorbed by the growth of GDP, another part is absorbed by the rising price and the rest reflects the excess liquidity.

With the VAR model and impulse-response analysis, this paper analyzed the impact of global liquidity surge to these seven countries and regions. According to the spillover effect of the global excess liquidity, we first input the G5 indicators with the following orders: outcome (real GDP), price level (GDP deflator) and excess liquidity (excess broad money); then we input the indicators of various countries with the order of outcome (real GDP), price level (GDP deflator) and broad money (or trade balance). Operating

the model, we can get the long-term stable impulse responses in chart 1.

Besides the United States, the increase of global outcome has significant positive impact on the economic growth of China, South Africa, Brazil, Russia and Euro Area, which excite money quantity of South Africa and Brazil increase together. As the locomotive of the global economy, the economic growth of the United States is adversely affected, because it transfers to foreign expenditure due to expanding imports. The impact of global GDP growth on Japan's economy is mainly embodied in price that it pushes up the price level in short term, but the correlation of them is negative in long term. The performance of Euro Area is like a developing

country, whose long-term outcome changes along with global outcome growth in the same direction.

Global rising price has positive impact on the GDP growth of Euro Area, China and South Africa; in addition, it leads to the bigger growth range of price in China, Japan and Euro Area. The price of Russia is entirely unaffected by global price and their direction is opposite. In addition, the global rising price is bad for China's stable money supply and the export growth of Euro Area.

The increase of global excess liquidity drives the prices of the United States, Euro Area and South Africa to rise; it also drives Japan's export-growth of Japan and Brazil's GDP growth; it has the negative impact on China's GDP growth.

**Table 1: Differences of the Impacts of Global Outcome, Price and Excess Liquidity on Various Countries**

	Impact of Global Outcome				Impact of Global Price				Impact of Global Excess Liquidity			
	Outcome	Price	Broad Money	Trade Balance	Outcome	Price	Broad Money	Trade Balance	Outcome	Price	Broad Money	Trade Balance
The United States	—***	0	0	0	0	0	0	0	0	+***	0	0
Japan	0	—*	0	0	0	+**	0	0	0	0	0	+*
Euro Area	+*	0	0	0	+*	+*	0	—***	0	+*	0	0
China	+***	0	0	0	+***	+***	+***	0	—**	0	0	0
South Africa	+**	0	+**	0	+**	0	0	0	0	+***	—***	0
Brazil	+**	0	+**	+**	0	0	0	0	+**	0	0	0
Russia	+**	0	0	0	0	—*	0	0	0	0	0	0

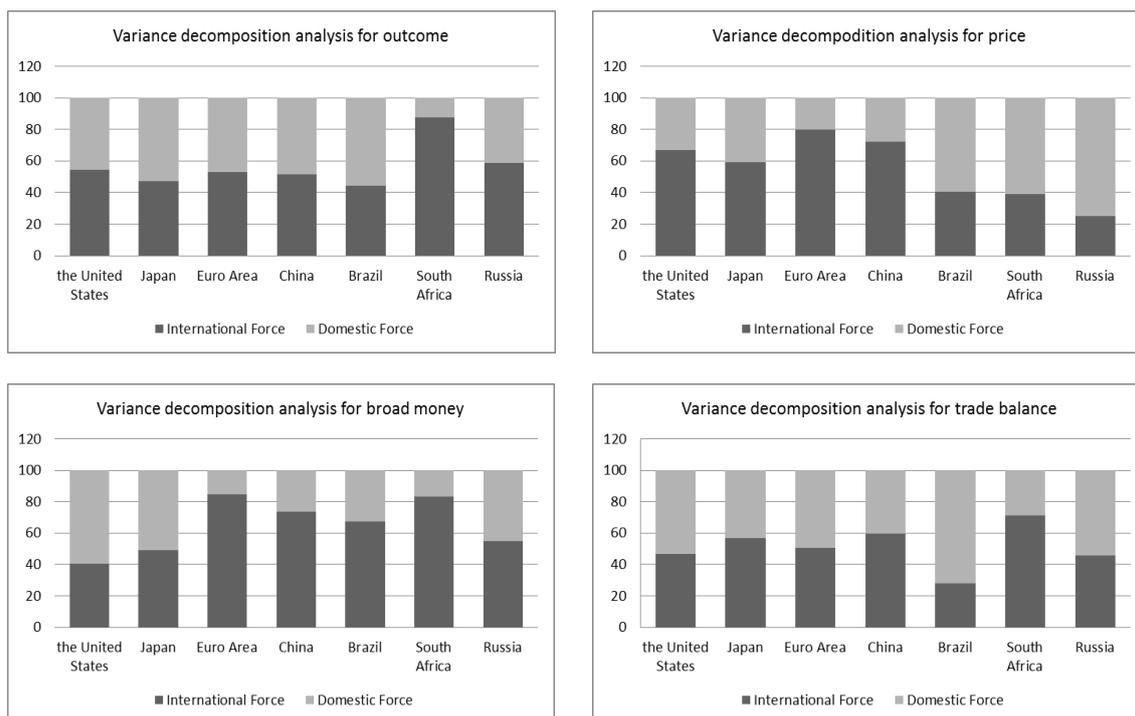
(Note: It reflects the long-term impacts; + represents mostly the positive impact, - represents mostly the negative impact, 0 represents that it do affects but less significant in statistics; \* shows it passes the test at 10% level. \*\* shows it passes the test at 5% level. \*\*\* shows it passes the test at 1% level.)

Source: Authors

### 5.3. The impact of international excess liquidity

The motive source of economy growth originates both local and abroad. The impacts of global economic environment including excess liquidity on the countries with different degrees of economic and financial openness are widely divergent. For this reason, the quantitative analysis is necessary on the basis of the above qualitative analysis. The paper analyzes the contributions of foreign variables in the economic

indicator growth of various countries quantitatively through VAR model and its variance decomposition analysis, in order to find out the impact degrees of global economic environment on different countries and areas (Figure 5). The contribution of the G5's (or G4) outcome, price and excess liquidity can be regarded as the international force. The domestic force includes the contributions of domestic outcome, price and broad money (or trade balance).



**Figure 5: Impacts of international force and domestic force in the economic development of various counties**  
 Source: Authors

The impulse responses of these countries to the changes of global economic environments are different because of their different objective economic cycles, development patterns and economic structures. From the aspect of GDP growth, the countries in order of the contribution degree of international force are as follows: South Africa (87%), Russia (59%), United States (55%), Euro Area (53%), China (52%), Japan (47%), and Brazil (44%). The contribution of international force on the rising price of Euro Area and China is over 70%; the main reason for the rising price of the United States and Japan is also the changes of international economic environment; however, the main motive source of price is the domestic variables in Brazil, South Africa and Russia and the contribution of the international force is no more than 40%. Besides the United States, the major driving force of the growth of money supply in the other six countries and regions is international force, especially in Euro Area, China and South Africa. The countries, the contribution degree of international force on whose trade balance is over 50%, are Japan, Euro Area, China and South Africa; Brazil is the country least affected by international force in terms of trade balance and the impact degree is only 27%; the contribution degree on the United States and Russia is about 46%.

## 6. Conclusions and Suggestions

Through the empirical analysis of impacts of G5 excess liquidity on the main developed countries and developing countries, this article can get the following main conclusions.

During this century, the global excess liquidity keeps increasing. And its speed in the developing countries is fast while slow in the developed countries. The spillover effect of the global excess liquidity spreads mainly through GDP and price.

The growth of global outcome has the significantly positive effect on the economic growth of Euro Area, China, South Africa, Brazil and Russia. However, it gives the negative effect on the United States. The correlation between Japan's GDP growth and global economic growth is not strong.

Besides Russia, the price of other countries has increased to varying degrees, driven by global rising price. The contribution of international force in China, U.S., Japan and Euro Area is higher than that of domestic force. However, the condition of Brazil, Russia and South Africa is opposite. It shows that the bigger its scale of economy is, the greater a country will be affected by imported inflation.

Shocked by international excess liquidity, money supply of China, Brazil, South Africa and Euro Area are increased significantly. Their autonomy of monetary policy is weaker than that of the United States, Japan and Russia.

According to the comprehensive review of the economic indicators in various countries after the shock of international excess liquidity, the top three affected countries are Euro Area, China and South Africa, whose indicators fluctuate significantly. The economic immune of the United States, Japan and Russia is stronger; the impact of international excess liquidity on whose GDP, money supply and trade balance is less.

The openness and development level of the economy is not the decisive factor in the excess liquidity's spillover effect. However, the structure of the macroeconomics and the management level discrepancy are the root causes of the influence difference among countries. Based on our reality, we must make contingent decisions aiming to the changes of global excess liquidity to protect ourselves from external shocks.

For the developing countries, inflation is one of the most serious problems. Imported inflation is one major feature of their present inflations. In order to control it, developing countries should adjust the current processing trade structure, increase the contributions of technology to outputs and reduce the economy's dependence on imported midst products. It is mainly the central bank to manage liquidity. However, liquidity management needs cooperation of fiscal policy, monetary policy and other policies. Reforming the international monetary system is the basic way to solve the problem of global excess liquidity and promote rebalancing of the world economy in long term. In addition, excess liquidity also has advantages that the sufficient liquidity is good for economic development. Therefore, developing countries also should take advantages of sufficient liquidity.

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