

# **TWIN DEFICITS: EVIDENCE IN OECD AND ASIAN COUNTRIES**

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## **ABSTRACT**

### **TWIN DEFICITS: EVIDENCE IN OECD AND ASIAN COUNTRIES**

**By**

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The main purpose of this study is to reexamine the relationship between government budget deficit, current accounts deficit, interest rate, and exchange rate in OECD countries and Asian countries from the period 1980:Q1 to 2008:Q4 in a context of the twin deficits hypothesis. Time series analysis and panel analysis are applied in this study. The conclusions are: first, the current account deficit, budget deficit, interest rate, and exchange rate are stationary in first difference. Second, the results show a cointegration between all the variables in some of the selected OECD and Asian countries, which indicates that current account deficit, budget deficit, interest rate, and exchange rate are moving together in long run but some are not. Third, the causality between budget deficit and current account deficit are very unclear in OECD and Asian countries in short run. In long run, both interest rate and exchange rate will affect the budget deficit and current account deficit. This indicates that interest rate and exchange rate have the force to affect the current account deficit and budget deficit in long term. Some policies have been recommended in this study that could be carried out by the government of the developed and developing countries as to support the economic development in future.

## **ABSTRAK**

### **DEFISIT BERKEMBAR: BUKTI DI NEGARA-NEGARA OECD DAN ASIA**

**Oleh**

**Tan Jui Siang**

Tujuan utama kajian ini dijalankan adalah untuk mengkaji semula hubungan antara defisit akaun semasa, defisit belanjawan, kadar faedah, dan kadar pertukaran asing dalam negara OECD dan Asia dengan menggunakan data quarter dan keratin lintas meliputi jangka masa dari tahun 1980:1 ke 2008:4. Ujian panel dan ujian siri masa telah diaplikasikan dalam kajian ini. Kesimpulan adalah: pertama, defisit akaun semasa, defisit belanjawan, kadar faedah, dan kadar pertukaran asing adalah pegun dalam perbezaan pertama. Kedua, keputusan menunjukkan kewujudan satu kointegrasi di antara empat pembolehubah pada sesetengah negara-negara OECD dan Asia yang terpilih, di mana menandakan bahawa defisit akaun semasa, defisit belanjawan, kadar faedah, dan kadar pertukaran asing adalah bergerak dengan sejala pada jangka masa panjang. Ketiga, pangaruhan antara defisit belanjawan dan defisit akaun adalah tidak jelas di negara-negara OECD dan Asia yang terpilih. Pada jangka masa panjang, kadar faedah dan kadar penukaran akan mempengaruhi sama ada defisit akaun semasa dan defisit belanjawan. Ini menandakan bahawa kadar faedah dan kadar penukaran asing akan menjadi satu daya untuk mempengaruhi defisit akaun semasa dan defisit belanjawan. Beberapa polisi telah dicadangkan dalam kajian ini boleh dilaksanakan oleh

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# CHAPTER 1

## INTRODUCTION

### 1.0 Government Budget Deficit

Government budget can be explained as a government's document that prepare by the minister of finance, approved by the prime minister or the president and passed by the legislature of a country. It content two basics elements that is government revenue and the government expenditure. Most of the government revenue is come from taxes that are collected in the state and the federal. The government expenditure is based government consumption, government investment, and transfer payment. Rosen (2005) explained government budget deficit occurs when the government expenditure exceed the government revenue. That means government spends more than their earning. The definition can be show by the equation below:

$$\text{Budget} = \text{Revenue} - \text{Expenditure} \quad (1.1)$$

### 1.1 Current Account Deficit

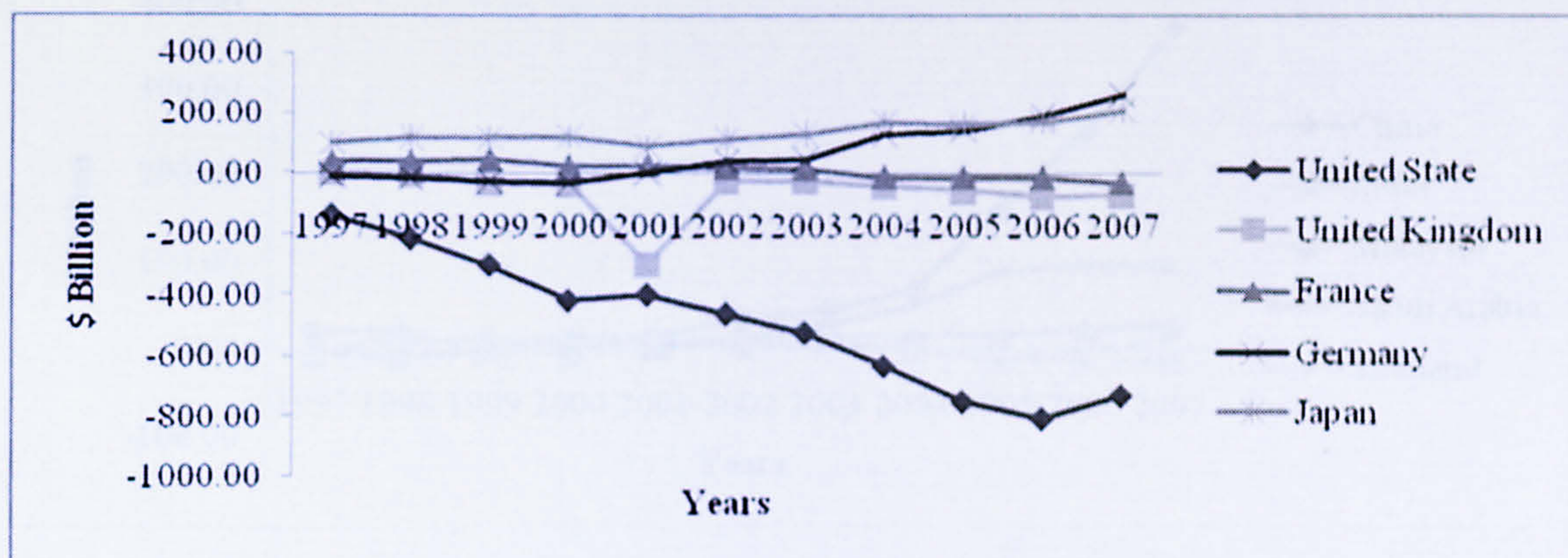
Current account is a part in balance of payment. Based on Carbaugh (2007), balance of payment is a record of the economic transaction between the residents of the one country and the rest of the world. According to Krugman and Obstfeld (2000), current account is one of the accounts that used to record the differences of export and import

goods and services between each other. Under current account, it content three components that is trade balance, income balance, and balance of transfer. According to Pugel (2007), trade balances also call merchandise balance. It includes export and import of good and service. Based on Pugel (2007) again, income balance includes an income that receives from foreigners or paid to foreigners. Husted and Melvin (2007) explained interest and dividend that paid or receive by the foreigners are included in this section. The last part of current account is balance of transfer or unilateral transfer. It was defined by Pugel (2007) as the items that keep track of gifts that the country makes and that country receive. Gandolfo (2004) defined unilateral transfer divide into two groups that are private and official. It may include voluntary subsidies to defense budgets, government contribution to international organization for administrative expenses, war reparation, and etc. Current account deficit means the import is more than the export, either in trade balance, income balance or unilateral transfer. The current account also can summarize by using the equation below:

$$CA=X-M \quad (1.2)$$

where CA= current account, X=export, and M=import.

**Figure 1: Current account in OECD countries**



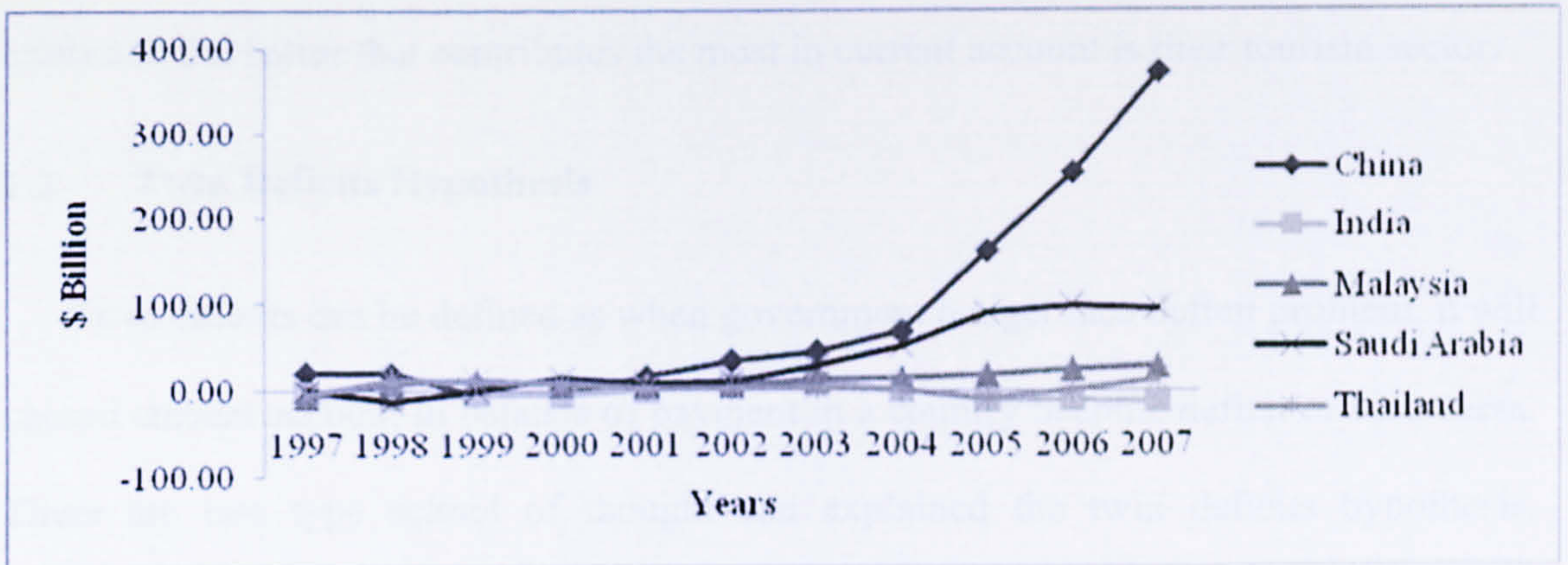
Source: International Financial Statistic, IMF

Figure 1 showed current account position in selected OECD countries. From Figure 1, current account in U.S is deficit since 1997 and it is getting serious from year by year. This is because some of the incidents had happen such as '911 incidents', technology bubbles, war between Iraq and U.S and the latest is the sub-prime mortgage crisis. U.S government had used a lot of government budget to solve the problems..

The second most deficit countries are the U.K. From the Figure 1, it also showed deficit since 1997. The largest current account deficit in U.K is on 2001 that are \$300.28 billion. France has a current account surplus since 1997 but it becomes deficit since 2004. Although Germany has deficit in 1997, its' current account become surplus since 2001 and created a highest current account surplus among the countries. It is about \$263.06 billion.

Japan is one of the countries that create current account surplus and the amount have increased since 1997.

**Figure 2: Current account in Asian countries**



Source: International Financial Statistic, IMF

Figure 2 showed the current account in some Asian countries. Most of the Asian countries recorded surplus in current account except India. China had achieved highest current \$21.12 billion increase to \$371.83 billion in 2007. This may be caused by the foreign direct investment in China. The cost of production in China is very cheap and this attracted many of the giant companies invest on China due to cheaper cost. These companies will export their product to other countries and this will help to increase China export and create a current account surplus.

India has current account deficit since 1997. Rising tax revenue from better tax administration and economic expansion helped India reduce the budget deficit in three years before skyrocketing global commodity prices more than doubled the cost of government energy and fertilizer subsidies (CIA-The World Fact Book, 2009).

The highest crude oil price period is the reason behind that Saudi Arabia and Malaysia recorded current account surplus from 1997 to 2007. It helped these two oil-exporting countries generate a lot of income through exporting oil. Thailand also has

positive current account since 1998. This showed Thailand already recovers from the crisis and the sector that contributes the most in current account is their tourism sector.

## **1.2 Twin Deficits Hypothesis**

Twin deficits can be defined as when government budget face deficit problem, it will caused current account in balance of payment in a country become deficit or vice versa. There are two type school of thought can explained the twin deficits hypothesis. Baharumshah & Lau (2006) explained twin deficits hypothesis based on the Mundell-Fleming framework. Based on this model, an increase in government budget deficit will persuade an upward pressure to interest rate and this will attract big amount of capital inflow to own country. This will caused the exchange rate appreciate and current account become deficit. According to Baharumshah & Lau (2006) again, capital inflow will induce an upward pressure to exchange rate either through rise nominal exchange rate in case under fixed exchange rate regime or rising the currency price under flexible exchange rate regimes. This will create a positive relationship between these two deficits.

Another school of thought is Keynesian absorption theory. According to Kouassi, Mougoue & Kymm (2004), an increase in government budget deficit persuade domestic absorption and this will cause import expansion and worsening the current account deficits. They also said that savings and investment are highly correlated, causing government budget deficits and current account deficits move together.



But there are school of thought states that the government budget deficit does not have any relationship with current account deficit. One of the theories is Ricardian Equivalence Hypothesis. This theory was provided by Barro (1974). It state that by imposed taxes, the disposable income in future will decrease and household will reduced their consumption and raise saving to reduced the effect on expected reduction in income. Hence there is no effect on savings, investments and also government budget deficit following a current account deficit.

### **1.3 An Overview on OECD and Asian countries**

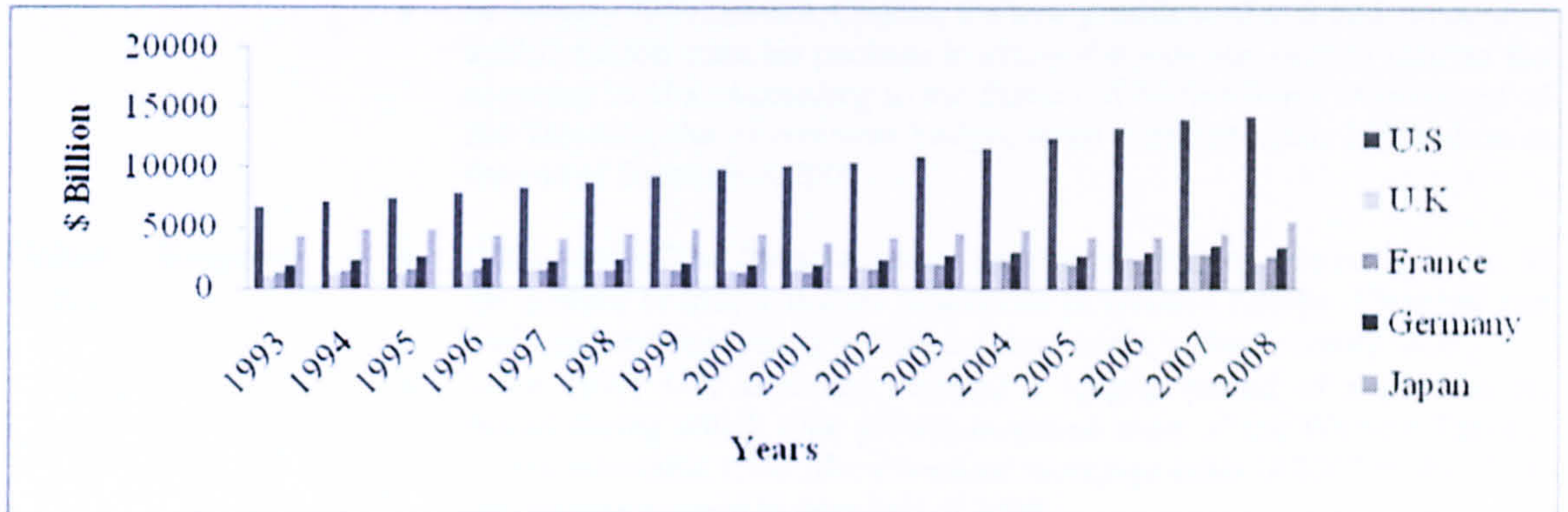
#### **1.3.1 OECD Countries**

OECD (Organization for Economic Cooperation and Development) country is an international organization that was established by 30 countries that was follows the ideas of representative democracy and using free market principle in their economy during 1961. All of the OECD countries can be concluded as developed countries. Before the OECD was named, the people call this organization OEEC (Organization for European Economic Co-operation) and its function was reconstruction of Europe after World War 2 at 1948.

There are six main objective of this organization. First is to get highest sustainable of economic growth. Second is to improve the employment rate among the countries' members. The third and the fourth are increase the standard of living among the countries' members and maintain the financial stability of the countries members. The

last two objectives are helping other countries in economics development and contribute to growth in world trade.

**Figure 3: Growth rate of OECD countries GDP**



Source: International Financial Statistic, IMF

Figure 3 shows that the GDP in OECD countries. U.S has the largest GDP among all of the countries. The GDP keep increasing from 1993 to 2008. From Figure 3, Japan has the second largest GDP. This may be causes by their technology product. Their technology product is much advanced in the world after U.S. Hence, they export many advanced technology to increase their GDP. There is a dropping in GDP during 1997 and 1998 in Japan. This may be causes by the Asian Financial crisis that happened in many of the Asian countries. Fortunately, Japan is not much greatly affected. Among the Europe countries, Germany has the largest GDP and this is still increasing year by year. France becomes the second and U.K is the third.

Table 1 summarized some of the OECD countries' economy background and some method they used during the global economics crisis.

**Table 1: OECD Countries Economy Background**

Countries	Economy Background
United States of America (U.S)	<ul style="list-style-type: none"> <li>• It cannot be denied that U.S is the most powerful economy in the world. Economy in U.S is market-oriented economy.</li> <li>• Since 2001, there are a lot of bad happening happened in U.S. 911 incident, war with Iraq in 2003, Hurricane Katrina in 2005, and sub-prime mortgage crisis caused government need make give a big amount of budget every year.</li> <li>• In January 2009, Barack Obama, the new president of U.S had announced a \$787 billion stimulus package to create the jobs and help to recover the economy in U.S. According to the Bureau of United State, Department of the Treasury, the government budget faced a deficit about \$459billion at the end of September, 2008.</li> </ul>
United Kingdom (U.K)	<ul style="list-style-type: none"> <li>• U.K is one of the financial centre and leading trading power. It is one of the quintets of trillion dollars economies in Western Europe. Financial and business service sector is the largest contributor in their country GDP.</li> <li>• Since 1992, U.K economy enjoyed a longest period of expansion on record during which time growth outpaced most of the Western Europe. Global economic crisis like sub-prime mortgage crisis in 2007 pushed U.K into recession again in later half of 2008.</li> <li>• Some of the action is done by the government to stimulate the economy.</li> </ul>
France	<ul style="list-style-type: none"> <li>• World War 1 and World War 2 causes France lost country's resources such as labor force and natural resources. The economy in France has transform from an economy that much relies on government intervention to market mechanism.</li> <li>• During 2008, the GDP of France was dropped 0.3% causes by the sub-prime mortgage crisis and this incident make the France government increase the public investment and continuing injected capital into banking sector.</li> <li>• As a result of lower fiscal revenue and increase government expenditure, government budget was expected will exceed 3% of the GDP which is the ceiling percentage that set by European Union.</li> </ul>
Germany	<ul style="list-style-type: none"> <li>• As a Europe second largest economy country, Germany plays an important role in economics, political, and defense organization. Germany was the fifth largest economy in the world.</li> <li>• Because of the economic crisis during 2007, Germany's economic growth is about 1% in 2008 and expected will drop to negative in 2009. The crisis also makes Germany face high unemployment rate and low economic growth. Many stimulus packages were launched by government to recover the economy.</li> <li>• Higher government revenues from the cyclical upturn in 2006 to 2007 and a 3% rise in the value-added tax cut Germany's budget deficit to within the EU's 3% debt limit in 2007.</li> </ul>

Countries	Economy Background
Japan	<ul style="list-style-type: none"> <li>• By measuring purchasing power parity, Japan is the third largest economy after U.S and China. Japan quickly recovers from World War 2 because two reason: the close interlocking structure of manufacturer, supplier, and distributor and guarantee of life time employment for a substantial portion of urban labor force.</li> <li>• Japan faced a high economic growth in 1960, 1970, 1980, and 1990 which is 10%, 5%, 4%, and 1.7%. Japan economic faced a recession in 2008 and had 0% interest in 2009. This condition is caused by the global economics crisis.</li> <li>• Although Japanese financial was not heavily affected by sub-prime mortgage crisis, but the downturn of business investment and global demand for Japan's export in 2008 make Japan faced recession problems. Same with other countries, Japan's government crate a lot of stimulus packages to help the economics to recover.</li> </ul>

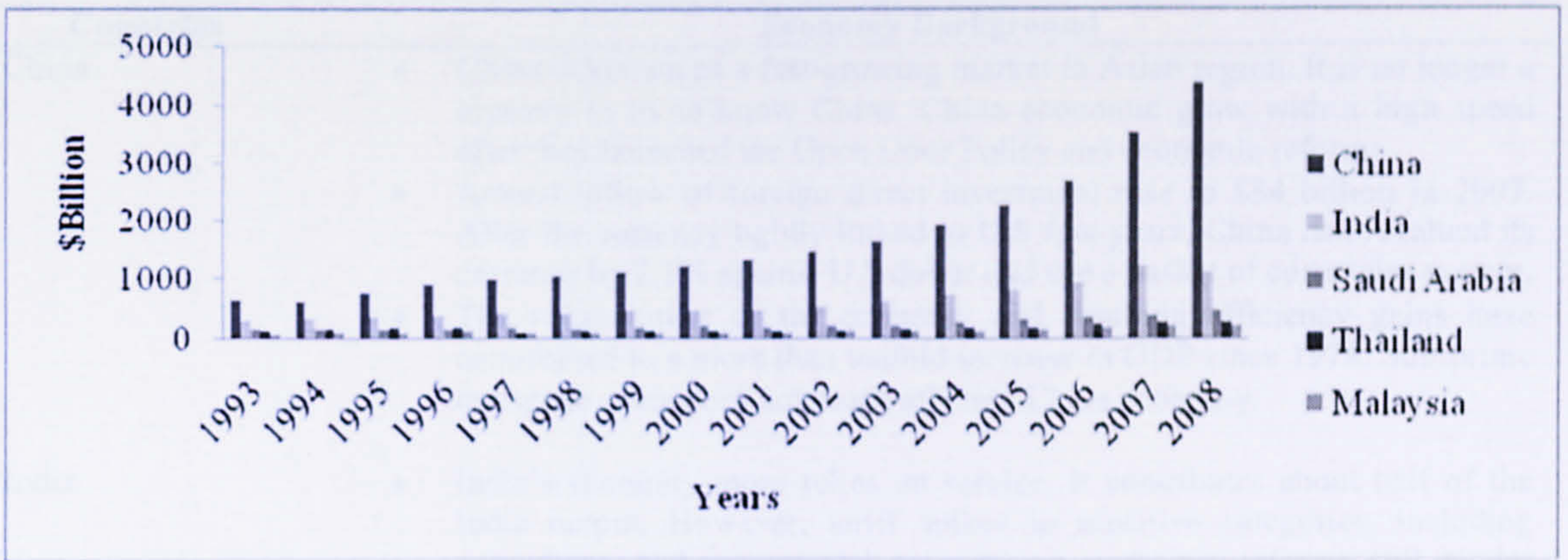
Source: CIA-The World Fact Book, 2009.

### 1.3.2 Asian Countries

Asian countries are the largest continent in the world if compare with Latin America, North America, Africa and Europe. There are fifty-six countries in Asia. It contributes about more than 60 % of the population in the world. Most of the countries in Asia are developing countries except Singapore, Hong Kong, Japan, South Korea, and Taiwan. They are also known as 'Asian Tigers'. The countries situated at South Asia also named as 'Middle East' rich with mineral and crude oil. Most of the crude oil in the world is exported from those Middle East countries (CIA-The World Fact Book, 2009).

The GDP per capita in Asian countries are around \$ 4,518. Although many of the Asian countries are developing countries but it is largest economy based in the world if calculated from the purchasing power parity.

**Figure 4: Growth Rate of Asian Countries GDP**



Source: International Financial Statistic, IMF

Figure 4 plot the GDP in Asian countries such as China, India, Saudi Arabia, Thailand, and Malaysia. From Figure 4, China economy grows rapidly over the recent year. In this few years, China is expected will continue play a major role in the global economy. As observed in Figure 4, India also showed an increasing in their GDP. This also shows that India also has a good economy growth and become a second major player in Asian. Saudi Arabia and Malaysia also have a positive increase in their economy growth. This may be causes by the global crude oil price keeps increasing this recent year. Thailand also has positive economy growth but it is not much significant like China and India.

Table 1 summarized some of the Asian countries' economy background and some method they used during the global economics crisis.

**Table 2: Asian Countries Economy Background**

<b>Countries</b>	<b>Economy Background</b>
China	<ul style="list-style-type: none"><li>• China is known as a fast-growing market in Asian region. It is no longer a mystery to us to know China. China economic grow with a high speed after they launched the Open Door Policy and economic reform.</li><li>• Annual inflow of foreign direct investment rose to \$84 billion in 2007. After the currency tightly linked to U.S few years, China had revalued its currency by 2.1% against U.S dollar and use a basket of currencies system.</li><li>• The restructuring of the economy and resulting efficiency gains have contributed to a more than tenfold increase in GDP since 1978. Sub-prime mortgage crisis does not much affected China economy.</li></ul>
India	<ul style="list-style-type: none"><li>• India's economy more relies on service. It contributes about half of the India output. However, tariff spikes in sensitive categories, including agriculture, and incremental progress on economic reforms still hinder foreign access to India's vast and growing market.</li><li>• The average growth rate in India is more than 7% since 1997. India had achieved 9.6% GDP growth in 2006, 9.0% in 2007, and 2.6% in 2008. Rising tax revenue from better tax administration and economics expansion helped help India reduced the fiscal deficit straight three year .</li><li>• India government return to large government budget deficit in 2008 may be caused by the global economics crisis.</li></ul>
Saudi Arabia	<ul style="list-style-type: none"><li>• Saudi Arabia is one of the richest countries in Middle-East. This is because its' country rich with a lot of petroleum and natural gas. The government controls most of the oil-based activities. It contributes about 20% of the world petroleum supply and the largest oil exporter country in the world.</li><li>• The petroleum sector accounts for roughly 80% of budget revenues, 45% of GDP, and 90% of export earnings. About 40% of GDP comes from the private sector. The Saudi Arabia government encourages the private sector growth especially in telecommunication sector, power generation, and petrochemical industrial to reduce the countries more relies on petroleum.</li><li>• During the high oil price period, the Saudi Arabia gets a large reserve from the oil revenue to give them opportunity to manage their government budget at time happening crisis.</li></ul>
Thailand	<ul style="list-style-type: none"><li>• According to Baharumshah and Lau (2007), Thailand economy emerged as one of the fastest growth in Asia-Pacific region. But after the Asian Financial Crisis in 1997, the Thailand's economy was slow down and embarks on the IMF mandated program.</li><li>• By using nine years, Thailand recovers from the economic crisis. Under the program, Thailand's economy becomes the best performer during 2002 to 2004. It generates about 6% of annual real GDP growth, but fallen sharply during 2005-2007. This may be causes by the unstable political structure.</li><li>• The growth rate of Thailand falls to 2.6% in 2008. The 2008 global financial crisis makes the Thailand's become worst than before because Thailand's economy much relies on foreign direct investment.</li></ul>

Countries	Economy Background
Malaysia	<ul style="list-style-type: none"> <li>• According to the World Bank Classification, Malaysia is an upper middle-income country. During Asian Financial Crisis, Malaysia was also one of the countries that hardly affected.</li> <li>• By using expansion monetary and fiscal policy, Malaysia recovers from the crisis. The exchange rate during that time was pegged to RM3.80/\$. This decision was made in order to make Malaysia become more competitiveness in trade with other countries. This will increase the net export of country and give a surplus in current account.</li> <li>• While the currency un-pegged with U.S in July 2005, the currency of Ringgit Malaysia appreciate about 6% in 2006 to 2008. The average GDP in Malaysia is 6% in 2004 to 2008.</li> <li>• The central bank maintains healthy foreign exchange reserves and the regulatory regime have limited Malaysia's exposure to riskier financial instruments and the global financial crisis.</li> </ul>

Source: CIA-The World Fact Book, 2009.

#### 1.4 Problem Statements

Twin deficit hypothesis is a problem that happened in many developed and developing countries and which the government in the countries tries to solve this problem.

According to Mundell-Fleming framework and Keynesian absorption theory, an increase in government budget deficit will cause the current account deficit. All of this action are come from government and in economic term call it as government intervention. The problem becomes more serious when the sub-prime mortgage crisis happened in 2007. This is because many countries' government injects money to the market to boost up their economy. The countries such as U.S, U.K, Japan, and Western Europe countries, the government come out the stimulus package to rescues their economy but some countries has showed significance result but some are not.

This condition also happened in other school of thought that is Keynesian absorption theory. Based on this school of thought, the government budget deficit will encourage domestic absorption and cause import expansion. This will also make the current account deficit. If the government budget surplus, will it cause foreign absorption, export expansion and current account surplus also need to be investigated by the researcher.

Ricardian Equivalence Hypothesis (REH) stated an intertemporal shift between taxes and budget deficits does not matter for the real interest rate, the quantity of investment or the current account balance. If the government imposed higher taxes will not affected government budget, what method still can be used by the government to solve twin deficits problems?

Will this action decrease the net export of the countries? Will the government budget deficit affect the current account deficit? Will balance of payments of a country become deficit? Or will this action will reduced or slow down the economic growth of a country?

Many problems that had found out by the researcher in their journal provide that the information and proven that shows the current account deficits causes budget deficit if that is two variables are used. If the exchange rate and interest rate was add as a variables to make the analysis, the different results will shows that not just the budget cause current account but also interest rate and exchange rate. Sometimes, the results