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Twin Deficits and Debts in 6 ASEAN Countries: A Panel Approach

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Abstract

In order to maintain the macroeconomic stability and sustainable economic growth, the current account deficit and fiscal deficit must be controlled. Besides, a country may encounter deficits that result in accumulation of debt during economic shock. This study aims to examine relationship between twin deficits and debts. The sample period is from 1990 to 2016 annually for 6 ASEAN countries. The methodology is pooled mean group (PMG) estimation. The finding shows that current account balance (CAB) and fiscal balance (FB) have positive significant relationship with the presence of debts.

Keywords: Twin Deficits, Debts, Current Account Balance, Fiscal Balance

Introduction

According to Baharumshah, Ismail, and Lau (2009), the relation among FB and CAB is often a subject of analysis. CAB is a major guiding of economic health that concluded as the total of trade balances, net current transfers and net foreign income. However, FB is a financial statement presenting government's revenues and spending. When fiscal account and CA that having deficit are being pull together, they are so called twin or double deficit. Fiscal deficit describes situation where country's expenses overtake revenues; whereas, CA deficit takes place when a nation imports exceed exports. The consistency behind these double deficits is that government reduces taxes by reducing revenue, hence raises the deficit. This causes the growing of consumption that results from spending of money by taxpayers that borrow abroad. These provide the support to twin deficit hypothesis where positive linkage among fiscal deficit and CA deficit will take place which fulfil Keynesian view (Chinn & Ito, 2007; Baharumshah et al., 2009; Forte & Magazzino, 2013; Trachanas & Katrakilidis, 2013; Gossé & Serranito, 2014; Coban & Balikcioglu, 2016; Afonso & Opoku, 2018).

Debt is defined as sum of money borrowed by one party from another. Government debt is in contrast to the annual government budget deficit, where it is a flow variable that equal to the difference between government revenue and expenditure in a year (Forte & Magazzino, 2013). After global financial turmoil, public debt has been towering to a rather high degree (Reinhart & Rogoff,

2010). Accumulation of public debt every year will induce the rising of fiscal deficit. Besides, the increases of fiscal deficit also leads by the adding of interest on debt every year. As growing yearly, previous debt amount, debt interest, and current adding newly debt will definitely expand debts to higher level. High debt level will lead to effect on fiscal deficit.

Constant and huge CA surplus is a new phenomenon in ASEAN countries. The CA data reveals that CA deficits have decreased in Malaysia, Thailand, Philippines, and Singapore, where these countries are with large public indebtedness. The driver of this phenomenon may cause by the downshift in domestic output and demand (Sulikova & Tykhonenko, 2017). Hence, selected ASEAN countries, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam are chosen to be examined. CA of Indonesia experiences continuous decrease since 2000 until demonstrates deficit recently. According to Guinigundo (2010), 2008 subprime mortgage crisis had induced Asian stock markets to decline, where Indonesia's bond spreads are the largest among emerging Asian economies. Whereas, Malaysia gains a peak CA surplus at 16.52% of GDP in 2008. This is because Malaysia responds to crisis by implementing two stimulus packages with direct cash injections (Athukorala, 2010; Sangakala, Ahmed, & Pahi, 2016). In 2008, Philippines exhibits a sharp decline in CA, induced by negative result of exports that causing by Philippine Peso depreciation and also weak external demand. Furthermore, the devaluation of peso and the surge in imports of rice and oil lead to a drop in export growth and a rise in import costs too.

Next, Singapore regularly reveals current account surpluses. Singapore has the ability to initiate fiscal surplus and successful in developing that attracts large capital inflows. Nevertheless, IMF suggests Singapore to minify its huge CA surplus by increasing public spending on social services and infrastructure. In latter half of 2014, CA of Thailand has improved to surplus after the relieving of political uncertainty. Nevertheless, Thai economy has faced some unfavourable factors in 2016, such as weak exports, internal doubt, global political dynamic, and volatile global financial markets. Yet, the tourism sector has refilling its important role as development driver to strengthen the economy. On the other hand, after 2008 crisis, CAB of Vietnam continues to rise until surplus. This is reflecting by the acceleration of industrial manufacturing production. Besides, Vietnam also signs some free trade agreements with key district to expand geographical scope of its market.

Figure 1. Current Account Balance of 6 ASEAN Countries, 1990-2016



Source: International Monetary Fund, World Economic Outlook Database (April, 2017).

One of the tools used to manage the current account imbalance is the fiscal policy. There are a huge number of empirical research studies focus on the relationship between twin deficits in developed nations, such as US and Euro countries, for example the empirical studies by Trachanas and Katrakilidis (2013); Gossé and Serranito (2014); Bollano and Ibrahimaj (2015); Coban and Balikcioglu (2016); Afonso and Opoku (2018). However, with the development of modern macroeconomics over the past half century, researchers have neglected to review debt issues as well. Debt is described as two-edged sword, where high and uprising debt has become an origin of certified concern (Cecchetti, Mohanty, & Zampolli, 2011). When using wisely, it will help to enhance welfare. Oppositely, using in excess, it will cause disaster. The accumulated sum of debt implicates the risk. As debt levels raise, borrowers' repayment capability is becoming more sensitive to falling revenue and sales, even rising of interest rates (Cecchetti et al., 2011). The higher the degree of debt, the larger the narrow in size of economy shock. Therefore, in this study, public debt is adopted to investigate the relationship between twin deficits in ASEAN-6 countries. This is in order to fill the empirical gap between twin deficits and debts in ASEAN region, whereby previous studies are mostly concentrated on twin deficits in developed nations.

Furthermore, debts is important to include in model, which also done by DeBelle and Faruqee (1996), Alam and Taib (2013), and Šŭliková and Tykhonenko (2017). Debts and fiscal deficit has significant relationship, where the size and component of debts will influence fiscal deficit. Serving large amounts of debts will increase government spending and channels to borrowing. Besides, it becomes a major concern is that widening of budget deficit in countries is requiring more fund to finance. Nevertheless, in the long run, excessive reliance on foreign financing will lead to increase in debt sustainability and interest payments, resulting a large debt for future generations (Girma, 2018). Thus, the accumulation of large public debt brings the shrinking in budget deficits and also the extensive of CA deficits. In conjunction, the main objective of this study is to examine the relationship between twin deficits and debts.

Literature Review

Ganchev, Stavrova, and Tsenkov (2012) reviewed twin deficit hypothesis is that fiscal deficit is positively significant to current account deficit, where it becomes guideline for fiscal policy construction. Chinn and Ito (2007) described there is significantly positive linkage among CA and government budget balance. When 1% accelerate in budget balance, will lead the CAB to increase by 0.15%. Besides, Baharumshah et al. (2009) also proposed budget deficit performs significantly in determining the CA deficit in Malaysia, Philippines, and Thailand. Furthermore, Makrevska-Disovska and Trpkova-Nestorovska (2016) analysed twin balances relationship in Macedonia. They summarized budget balance is significant to CA with positive relation, where 1% of GDP rises in budget balance leads GDP in CA grows by 0.28%. However, more recently the empirical studies on twin deficits give mixed results. There is a study on 18 OECD countries by Afonso and Opoku (2018) concluded significant long run relationship within FB and CAB. Nevertheless, Girma (2018) found that there even appear of twin divergence phenomenon in Ethiopia, where the long run relationship between CAB and FB is negative and statistically significant.

Public debt (PD) and fiscal deficit are highly correlated, where the magnitude and element of public debt will cause the fiscal deficit to occur. DeBelle and Faruqee (1996) studied effect of fiscal policy on CA in 55 high and low debts countries. They found that in low PD countries, effect of fiscal surplus on CA is significantly positive. Whereas, in high PD countries, the effect is close to zero, consistent with idea that high public debt countries are “more Ricardian”. Next, Nickel and Tudyka (2014) studied impact of fiscal stimulus at distinct level of government debt of 17 European nations. Findings indicate twin deficits situation appears at low debt levels, while twin divergence demonstrates during high debt levels. In addition, Šŭliková and Tykhonenko (2017) examined twin deficits hypothesis with public debt of European countries too. Their findings denote twin divergence phenomenon when public debt is less than 40.2% and more than 96.6%, which is negative significant relationship within FB and CAB. However, there is existence of twin deficits when public debt is in gap between 40.2% and 96.65%.

Data and Methodology

The research countries are selected 6 ASEAN countries from 1990 to 2016 annually with balanced panel data approach. The dependent variable is current account balance (CAB); independent variables are fiscal balance (FB), public debt (PD), real GDP (RGDP), real effective exchange rate (REER), age dependency ratios for old (ADRO), and age dependency ratio for young (ADRY). Data is retrieved from IMF, World Economic Outlook Database and World Bank, World Development Indicator. PD is defined as debt owned by government foreign lenders. According to Barro (1979), public debt is cleared as the aggregate of present value of government spending and the initial debt level; RGDP is the cost of all services and goods generates by an economy in a year; REER is the measure of a currency value in contrary to a weighted average of some foreign currencies in relation to an index of costs; ADRO is ratio for people older than 64 to percentage of working-age population; ADRY is ratio for young aged under 15 to percentage of working-age population.

The balanced panel model of this study is expressed with logarithm and presented as follow.

$$LCAB_{it} = \alpha + \beta_1 LFB_{it} + \beta_2 LPD_{it} + \beta_3 LRGDP_{it} + \beta_4 LREER_{it} + \beta_5 LADRO_{it} + \beta_6 LADRY_{it} + \varepsilon_{it}$$

Panel Unit Root Tests

Unit root test is adopted to measure the stationary of a procedure that alter with time. Stationary test is necessary in investigating the variables to discover their effectiveness of norm hypothesis for the asymptomatic analysis. In order to have a stationary process, others of this identity equation that lies among the particular absolute value is required to distinguish the amount of units according to the process. Levin, Lin, and Chu (2002) and Im, Pesaran, and Shin (2003) unit root tests are adopted.

Panel Cointegration Tests

Cointegration test is primarily applied to investigate the long run equilibrium relationship between variables. Cointegrating test is a signification of feasibilities to serve as a cointegrating vector whereby the coefficient can be straightly explained as long-term equilibrium. In Pedroni (1999) test, cointegrated of variables are determined by denominating number of significant or insignificant variables. Pedroni (1999) and Kao (1999) are used in this study.

Pooled Mean Group (PMG) Estimation

PMG adopted to examine non-stationary dynamic panels, where parameters are heterogeneous across units (Pesaran, Shin, & Smith, 1999; Matarid, Sobh, & Ahmed, 2018). PMG emphasizes the identical of long run coefficients, whereby crossing the countries, short run coefficient and error variances allow to vary easily across groups.

Empirical Findings

Panel Unit Root Tests

The null hypothesis for Levin et al. (2002) and Im et al. (2003) are unit root exists. In first difference, $I(1)$, variables are smaller than significant value, thus reject null hypothesis (refer Table 1). Therefore, by concluding both unit root tests, all variables are stationary at $I(1)$ with no unit root exists.

Table 1. Levin, Lin, and Chu (LLC) and Im, Pesaran, and Shin (IPS) Panel Unit Root Tests Results

	Test Statistics			
	LLC	IPS	LLC	IPS
	Individual Intercept		Individual Intercept and Trend	
		Level		
LCAB	-1.1139(0.1327)	-1.2897 (0.0986)*	-1.0116 (0.1559)	-1.7570 (0.0395)*
LFB	-2.6421(0.0041)*	-2.4271 (0.0076)*	-3.3286 (0.0004)*	-2.3810 (0.0086)*
LPD	-15.3981(0.0000)*	-8.3489 (0.0000)*	-9.6784 (0.0000)*	-6.4176 (0.0000)*
LRGDP	-1.0748 (0.1412)	2.4331 (0.9925)	-1.6223 (0.0524)*	-1.7144 (0.0432)*
LREER	-1.5347(0.0624)*	-0.1760 (0.4301)	-0.1504 (0.4402)	0.4449 (0.6718)
LADRO	1.3948 (0.9185)	4.1973 (1.0000)	-0.8572 (0.1957)	-1.3728 (0.0849)*
LADRY	-4.0286(0.0000)*	-0.2184 (0.4136)	-3.5134 (0.0002)*	-1.7592 (0.0393)*
		First Difference		
Δ LCAB	-9.0204(0.0000)*	-10.8101(0.0000)*	-3.6017 (0.0002)*	-9.1555 (0.0000)*
Δ LFB	-10.6245(0.0000)*	-10.7976 (0.0000)*	-7.9994 (0.0000)*	-8.7068 (0.0000)*
Δ LPD	-8.1318(0.0000)*	-8.1029 (0.0000)*	-5.1504 (0.0000)*	-6.1962 (0.0000)*
Δ LRGDP	-6.1989(0.0000)*	-5.5605 (0.0000)*	-5.2280 (0.0000)*	-5.8448 (0.0000)*
Δ LREER	-7.8839(0.0000)*	-7.2534 (0.0000)*	-6.6959 (0.0000)*	-5.7540 (0.0000)*
Δ LADRO	0.4916 (0.6885)	-2.0754 (0.0190)*	1.5322 (0.9373)	0.0132 (0.5052)
Δ LADRY	-2.2868(0.0111)*	-1.8572 (0.0316)*	2.0420 (0.9794)	2.6518 (0.9960)

Note. LLC indicated Levin et al. (2002) and IPS indicated Im et al. (2003) panel unit root and stationary tests. The LLC and IPS examine the null hypothesis of non-stationary of variables. The parenthesized values are the probability of rejection. Asterisks (*) indicates statistically significant at 10 percent level.

Panel Cointegration Tests

In both Pedroni (1999) and Kao (1999) cointegration tests, the null hypothesis are no cointegration (no long run). The result in Pedroni test shows that there are four out of seven majority statistics have sufficient evidence on rejecting the null hypothesis (refer Table 2). On the other hand, the probability value in Kao test is smaller than significant level, which indicates to reject null hypothesis too. In conclude, all variables are cointegrated in long run.

Table 2. Panel Cointegration Tests Results

A: Pedroni Residual Cointegration Test

Panel cointegration statistics (within-dimension)

Panel <i>v</i> -statistics	0.2601 (0.3974)
Panel <i>rho</i> -statistics	0.9497 (0.8289)
Panel <i>PP</i> -statistics	-1.5160 (0.0648)*
Panel <i>ADF</i> -statistics	-4.7201 (0.0000)*

Group mean panel cointegration statistics (between-dimension)

Group <i>rho</i> -statistics	1.3191 (0.9064)
Group <i>PP</i> -statistics	-5.5882 (0.0000)*
Group <i>ADF</i> -statistics	-5.3619 (0.0000)*

B. Kao Residual cointegration test

<i>ADF</i>	-3.1856 (0.0007)*
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Note. The number of lag truncations used in the calculation of the seven Pedroni statistics is 4 while Kao *ADF* statistic is 6. The parenthesized values are the probability of rejection. Asterisks (*) indicates statistically significant at 10 percent level.

Pooled Mean Group (PMG) Estimation

According to Bangake and Eggoh (2012), in order to assess the null hypothesis of homogeneity, Hausman test is performed to distinguish between mean group (MG) and PMG estimators. Based on Hausman test result in Table 3, *p*-value indicates that null hypothesis is failed to reject. Therefore, in this study, supporting the employment of PMG estimator. PMG highlights the adjustment between short and long run that involving both pooling and averaging. The result of PMG estimation demonstrates that LPD is affecting relationship of LFB and LCAB, where both balances show a positive and statistically significant relationship. This finding is coherent with the traditional twin deficits hypothesis and also fulfil the Keynesian theory, where government spending is driving force to aggregate demand. When taxable income reduced, causes rising in budget deficit, as government spends more to meet the demand. This leads government expenses to exceed revenue. This reflects the domestic absorption.

Table 3. Hausman Test and PMG Estimation Results

	Panel Group
LFB	0.2559 (0.0345)*
LRGDP	0.3954 (0.0000)*
LREER	-1.0781 (0.0000)*
LADRO	-0.1818 (0.6942)
LADRY	-0.5866 (0.0604)*
LPD	-0.1144 (0.3052)
Hausman Test	
Chi-square statistics	12.3500
<i>p</i> -value	0.0545

Note. Asterisks (*) indicates statistically significant at 10 percent level. If *p*-value greater than 5% (0.05), do not reject H_0 .

Conclusion

The objective of this study is to determine the relationship between twin deficits and debts in the selected 6 ASEAN countries from 1990 to 2016 annually. The dependent variable is CAB; independent variables are FB, PD, RGDP, REER, ADRO, and ADRY. Panel unit root tests and panel cointegration tests are adopted and also PMG estimation. The major findings show that the presence of public debt will affect FB and CAB to demonstrate a positive and statistically significant relationship. The relation is either performing as twin deficits or twin surpluses. Kueh, Liew, Yong, and Abdullah (2016) agreed that public debt has become an important global issue, where a country tends to seek alternatives from overseas on borrowing to mitigate any serious negative impacts caused by economic shocks.

From a policy perspective, the economic uncertainty in this contemporary era has brought in the case of unavoidable debt accumulation. Together with the findings of this study suggest that handling optimal debt is very important so as to overcome the unbalances of fiscal account and current account. Therefore, public debt should be paid with highly concern of policymakers in the countries to overcome the deficits issues. Kueh, Liew, and Yong (2017) mentioned that it is a great task in controlling the debt at optimal level, as different type of debts and different level of debts will behave differently to current account and fiscal account. In spite of that, the well-being of people must also be included during debt structure (Kueh et al., 2016). Fiscal rules are useful in limiting government spending, income, unexpected income, budget balance or even debt, such as the fiscal consolidation. According to Margit (2012), during the fiscal consolidation, if the fiscal adjustment is refer to expenditure rather than tax drive, the debt will be stabilized and the stability is long-lasting. Fiscal consolidation can be introduced to state-level governments in order to work together with central governments in the effort of debt stabilization. Hence, the public debt of country can be controlled and maintained, so as to ensure the sustainability of fiscal balance and current account balance of a country in long term.

According to traditional twin deficits hypothesis and also the Keynesian theory, they suggested that current account deficits and fiscal deficits have positive relationship among each other. As referring to this research, the major findings are significant to the theoretical contribution, where there is positive linkage between twin balances with the presence of public debt. In spite, public debt has become a highly concerned global issue and it also plays an important role in affecting the relationship between twin balances. Hence, it is a huge challenge to maintain optimal debt level, in order to overcome the twin deficits issue.

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