



Fiscal Deficit, Trade Deficit, and Financial Account Deficit: Triple Deficits Hypothesis with the U.S. Experience

Tuck Cheong TANG

Abstract:

By extending the well-known twin deficits hypothesis, this study proposes a new testable hypothesis - "triple deficits hypothesis" from the general equilibrium perspective, which considers the third deficit of capital and financial account of balance of payment. An empirical I framework is conceptually developed from income-expenditure approach for cointegration. Positive finding is confirmed by the U.S. data that fiscal balance, current account balance, and capital and financial account balance are moving together in the long-run, or to say that they are cointegrated. It is also interesting this study finds that current account does Granger-cause fiscal balance, as well as the U.S. financial account position. This study has relevant policy implications, in particularly the country is with twin deficits phenomenon. This seminal work is still preliminary, and a few of suggestions have been outlined for further study.

Keywords: Capital and financial account; Budget deficit; Current account balance; Twin deficits

JEL classifications: H62; F41

Tuck Cheong TANG
Department of Economics, School of Business
Monash University Malaysia

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1. Introduction

The so-called twin deficits hypothesis that a growing fiscal (or budget) deficit along with a growing current account deficit, has been widely theoretically or empirically examined by researchers as one of the fundamental topics in open macroeconomics (see, (Miller & Russek, 1989); (Cavallo, 2005)). Following (Bartolini & Labiri, 2006) the argument of twin deficits phenomenon first emerged in the 1980s with a significant deterioration in the U.S. current account balance accompanied a sharp rise in the federal budget deficit. Technically speaking, (Tang & Lau, 2011, p. 249) estimated a one percent increase in budget deficit would result 0.43% increase in current account deficit for the U.S. over the sample period 1973-2008.¹ Empirical study also focuses on other countries, in particular Asian countries, among them (Lau, Abu Mansor, & Puah, 2010) re-visited the twin deficits hypothesis for the Asian crisis-affected countries. The causality results support twin deficits hypothesis for Malaysia, the Philippines (pre-crisis), and Thailand, while a bi-directional causality is found for the Philippines in the post-crisis era. Also, based on the cointegration and causality tests (Lau & Tang, 2009)'s study validates the twin deficits hypothesis for Cambodia, for example.² (Makin & Narayan, 2013) re-examined the twin deficits hypothesis for Australia. Their results support the conceptual framework suggesting that fiscal policy is likely to be ineffective as an instrument for influencing the real economy. However, the literature survey shows none of the study considers the correlation between twin deficits, and financial account deficit, conceptually or empirically.

The reported parallel negative money balances of budget balance, current account, and financial account (in Table 1) over the observed period 1960Q1- 2013Q1, informs the U.S. experience of the "triple deficits". The evidence of triple deficits was immediately apparent that the quarters in late 1970s and 1980s have budget balance, current account, and financial account in deficits. This preliminary observation motivates and supports the present study to explore and investigate a potential macroeconomics issue of international macroeconomics - triple deficits, especially for the case of U.S. It is expected to make a new contribution to the existing literature of introducing the triple deficits hypothesis. Since 2002, the U.S. has seen the emergence of twin deficits, which reflects increasing U.S. borrowing from abroad (Cavallo, 2005b, p. 1). However, as noted by (Eichengreen, 2006), "*large and persistent U.S.*

¹ An early study by (Miller & Russek, 1989), a positive secular relationship between the twin deficits exists only under flexible exchange rates showing that a \$1 change in the fiscal deficit eventually leads to roughly a \$1

²The pattern of causality is from budget deficits to external deficits in the short- run, while the empirical results suggest that both the balances are cointegrated revealing a long-run equilibrium relation.

current account deficit would distort the capital inflows...” – it may further assume the deterioration of capital and financial account (hereinafter, financial account) balance of the balance of payments (BoP).

Table 1 Fiscal Deficit, Current Account Deficit, and Financial Account Deficits – U.S.

Period	Budget balance	Current account	Financial account	Period	Budget balance	Current account	Financial account
Q4 1968	-5.3	-0.204	-1.46	Q2 1980	-85.5	-3.764	-13.33
Q1 1972	-43	-6.772	-0.14	Q1 1982	-136.8	-1.14	-11.62
Q3 1976	-77.3	-0.336	-1.8	Q3 1982	-181.3	-16.16	-6.7
Q2 1978	-40.8	-15.11	-4.11	Q4 1982	-217.4	-19.99	-9.49
Q4 1978	-36	-2.716	-1.31	Q1 1983	-217.7	-10.07	-14.67
Q1 1979	-30.9	-1.696	-9.62	Q3 1988	-130.1	-111.7	-5.69
Q2 1979	-31.1	-2.764	-8.01	Q2 1989	-144.7	-100.7	-11.84
Q4 1979	-47.4	-0.392	-10.03	Q4 1995	-242.8	-92.59	-16.77
Q1 1980	-56.8	-13.84	-7.65	Q3 2009	-1627	-375	-27.43

Notes: The financial account (FA) is the sum of capital and financial account including change in reserves. The unit is in USD billions. The observed period is between 1960Q1 and 2013Q1 (database from Web CEIC Data Manager Data).

The objective of this study is to propose the so-called triple deficits hypothesis an extension of the conventional twin deficits hypothesis by identifying the potential “third” deficit of the BoP, namely capital and financial account deficit.³ A current account deficit indicates that a country receives fewer funds from exports to support its imports, must sell its assets to the foreigners in order to finance this insufficiency; hence a current account deficit must be accompanied a capital and financial account surplus, and *vice versa*. A few of empirical studies have examined the causal relationships between both the component accounts of balance of payments i.e. current account, and financial account (Wong & Carranza, 1999); (Yan, 2005); (Lau & Nelson, 2011). A recent study by (Tang & Fausten, 2012) has looked at the “interdependence” between the current account and financial account rather than of “causality” that captures the reactions of the financial and real sectors to systemic disturbances and their interaction during the adjustment process, see (Fausten, 1989-90). Their findings are positive. However, their works as well as the existing studies on twin deficits do not recognise the “third” deficit - financial account balance that is explained by either budget deficit or current account deficit, or both. A conceptual explanation of its natural is derived and documented in Section 2. This study fills the gap of the literature, especially in

³ It is in conformity with current nomenclature and practice that the former capital account is renamed and becomes the *capital and financial account*. For convenient, we name it financial account (FA) in short, which assimilates private capital flows and official reserve transactions (Tang & Fausten, 2012, p. 234).

the field of international macroeconomics by proposing an analytical framework (hypothesis) for testing the so-called triple deficits phenomenon. It does provide a seminal empirical evidence of employing U.S. data.

A more formal explanation of the triple deficits hypothesis can be started with a conventional framework of Keynesian thought, other things being equal, that twin deficits may result two possible reasons for the “third” deficit i.e. financial account deficit. The standard model of loanable fund, net capital outflow, and foreign exchange markets suggests that the influences of budget deficit on financial account are ambiguous. The first view is that the government’s dis-savings (budget deficits) will drive the real interest rate up, and the domestic financial assets become more attractive because of higher expected yields. Consequently, it encourages capital inflows but lower the outflows improving the financial account; it is also due to the borrowing from overseas to finance the deficits. The second outcome of twin deficits on financial account is captured by the exchange rate channel. A rise (appreciation) of real exchange rate (proxies the *price* of the foreign financial assets) in the foreign exchange market as resulted from twin deficits, *ceteris paribus*, cheaper the foreign assets for domestic residents but more expensive the domestic financial assets for foreigners. Therefore, it drives the financial account into deficit as more capital outflows (i.e. more foreign investments by domestic residents) and lower inflow (i.e. less attractive the domestic financial assets for foreign investors). The tri-deficits phenomenon hold if we assumed the exchange rate channel is stronger (or more efficient) than interest rate channel. Empirically, it may imply two unidirectional causations either from budget deficit to current account then financial account (BB → CA → FA, where “→” denotes “does Granger-cause”)⁴ or from budget deficit to financial account (BB → FA), or both.

The next section develops the theoretical framework from the general equilibrium perspective with application of the so-called income-expenditure approach in order to derive the inter-relationship among budget balance (BB), trade balance (CA), and capital and financial account (FA). Section 3 discuss data issues and report the results of cointegration and causality tests, and Section 4 concludes the study.

⁴ However, as viewed by (Coughlin, Pakko, & Poole, 2006), the current (trade) account deficit is driven by capital flows that capital inflows keep the dollar stronger than it otherwise would be, tending to boost imports and suppress exports, thus leading to a current account deficit.

2. General Equilibrium Perspective - Income-Expenditure Approach

This section establishes a theoretical framework of triple deficits hypothesis explaining the linkages between twin deficits (budget, and current accounts deficits), and financial account (FA) deficit by employing the income-expenditure approach from the general equilibrium perspective. The appropriateness of this approach in analyzing the linkages between the accounts balances of BoP such as the present study, has been justified by (Tang & Fausten, 2012, p. 232) that “*the empirical finding of two-way casualty reinforces the intuition that temporally based causality relationships may not reveal the true structural relationship that exists ...*”. For example, (Tang & Lau, 2011) have applied it [income-expenditure approach] for re-examining the U.S. twin deficits hypothesis. To proceed, two basic macroeconomic concepts are being considered in this section, namely, twin deficits hypothesis, and interdependence hypothesis (current and capital accounts) (Fausten, 1989-90).

Twin deficits

To recall, in equilibrium markets must clear that in the goods (and services) market the planned expenditure (E) equals planned output (Y) per period, $E = Y$. Given $E = C + I + G + X - M$, and $Y = C + S^p + T$, the income-expenditure equilibrium condition can be rewritten as $I + G + X = S^p + T + M$.⁵ The public saving, $S^g = T - G$ and that the sum of public and private saving represents national saving (S^n) it follows that the trade balance is equal to planned net national saving, $S^n - I$ ⁶:

$$X - M = S^n - I \quad (1)$$

The trade position ($X - M$) is equivalent to the sum of net private saving ($S^p - I$), and the government's budget surplus ($T - G$), or $(X - M) = (S^p - I) + (T - G)$. This formulation draws attention to the potential relationship between fiscal policy and the current account balances – twin deficits phenomenon. Rewriting the terms of current account and budget balance with $CA = X - M$, and $BB = T - G$, respectively:

$$CA = (S^p - I) + BB \quad (2)$$

⁵ Let to define, C is domestic consumption of goods and services; I is domestic investment, G is domestic government expenditure; X is exports of goods and services, M is imports of goods and services, S^p is private sector saving, and T represents the total tax revenue accruing to the domestic government.

⁶ Assuming an economy is in full employment, equation (1) implies a condition that for goods market equilibrium net imports ($M - X$) must provide the resources to cover the excess of investment spending (I) that is not provided from domestic sources – national saving (S^n). It reflects that any domestic spending or exports that cannot be provided for from domestic resources requires the importation of the requisite resources from abroad. These balances provide potentially useful insights into possible adjustment processes that may affect net exports ($X - M_t$) or current account balance (CA).

Of equation (2), a budget deficit (or government dis-saving) may be offset by an increase in private saving or fall in domestic investment or exports. The latter adjustment response does cause the trade balance to fall as captured by the twin deficit phenomenon. The twin deficit hypothesis reflects that the external balance is dominated by the government budget, that trade deficits reflect predominantly budget deficits, and conversely.

Current, and (capital and) financial account interdependence

In the BoP accounting, the mirror image of the current account (CA) is a measure known as the capital and financial account (FA), which measures the international flow of capital assets (Coughlin, Pakko, & Poole, 2006). (Fausten, 1989-90) has published his conceptual framework on the interdependence between current and capital accounts (now known as financial account), which is a fundamental relation in open economy macroeconomics. In general, the interdependence of these component accounts captures the reactions of the financial and real sectors to systemic disturbances and their interaction during the adjustment process. His work has been extended by (Tang & Fausten, 2012, pp. 233-8) that a set of empirical equations is developed by the BoP constraint, and open economics macro equilibrium both are embedded in a common analytical framework defined by the open economy income expenditure relationships. Some of their results are positive, and support the current and financial accounts interdependence.

The *ex post* BoP identity is written by $BoP = CA + FA \equiv 0$, and it allows the alternative interpretations that current or financial account transactions are the accommodating vehicle that $CA = -FA$, or $FA = -CA$.⁷ In the limiting case of freely floating exchange rates, any deficiencies in financial sector (-FA) are entirely funded by the surplus inflows from exports ($X > M$) in the goods and services sector. Similarly, the real sector deficit ($M > X$) is financed by net capital flows (FA) or inflows from the abroad. However, putting this view more impressionistically as noted by (Coughlin, Pakko, & Poole, 2006) international investors buy U.S. assets not for the purpose of financing the U.S. current account deficit but because they believe these are sound investments, promising a good combination of safety and return. national income-expenditure relationships reflect that the current account balance (CA) is equivalent to the national saving-investment balance ($S^n - I$), i.e. $CA = S^n - I$. In an open economy, national saving can be invested at home or abroad, so that the saving-investment

⁷ We assume a perfect reporting of balance of payments data, i.e. no “errors and omissions” that balancing item in the BoP records is absolutely small or zero.

relation can be rewritten as $S^n = I^d + I^*$ where the foreign investment $I^* \equiv CA = -FA$. The acquisition of foreign assets ($FA < 0$) and commensurate transfers of domestic real resources to users abroad ($CA > 0$), so that

$$(S^n - I) = CA = -FA \quad (\text{Tang \& Fausten, 2012, pp. 236-7}) \quad (3)$$

Triple Deficits

After re-calling the fundamental idea of twin deficits hypothesis, and current and financial account interdependence, an analytical framework of triple deficits hypothesis can be constructed from the general equilibrium perspective with application of the income-expenditure approach. Assuming $S^n \equiv S^p$ (based on the case that $T-G \leq 0$), we substitute equation (3) into equation (2) an equilibrium relation of current account can be rewritten as $CA = -FA + BB$. It reflects a true structural relationship that exists among budget balance, current account balance, and financial account deficit. Re-arranging this relation $CA = -FA + BB$ with a negative sign of each balance (to measure deficit) as written in equation (4) is in conformity with the triple deficits hypothesis, at least from the implication of cointegration time series econometric approach. If, the three variables BB , CA , and FA are moving together or cointegrated, the triple deficits hypothesis is supported. Or, to say, in the long-run or equilibrium level a deficit in fiscal balance will be matched by the net deficits between current and financial accounts. Both deficiencies in the real sector (CA) and financial sector (FA) that are *interdependence*, are also implied by the observation that shortage (of funds) to buy real resources (imports) from abroad is financed by non-financial sector since inflows of capital is lower than of outflows (deficit in financial account) or by the non-government sector (due to deficit in fiscal account). By the same token, the budget financing is must be matched with both deficits of component accounts of BoP.

$$-BB = -CA -FA \quad (4)$$

Perhaps, equation (4) can be further written in terms of a structural relation between various balances by their behavioural functions that have received prominent attention in open economy macroeconomics discussion. If we re-interpret the terms in this definition as behavioural relationships, in the sense of schedules of demand and supply relations, then this expression constitutes an equilibrium condition, i.e. $-[T(\cdot) - \bar{G}] = -CA(\cdot) -FA(\cdot) \sim I(0)$ (where $-(T - \bar{G})$ is budget deficit, $-BB$). Each term is written in functional notation to emphasize that we are now dealing with behavioural variables, that is, with *planned* magnitudes, $-[T(y^+) - \bar{G}] = -CA(y^-, e^+, y^{*+}) -FA(r^+, r^{*-})$. The expected signs (superscripted) of the independent variables

or drivers are based on conventional economic theories. However, it is out of the scope for the present study. Eventually, this extended idea is useful for academics, researchers and policymakers to understand how the variables (of the equation 4) response simultaneously to their own drivers in the short run (disequilibrium) and toward its equilibrium.

3. Empirical Illustration – United States (U.S.)

This section adds an empirical value to the proposed triple deficits hypothesis by examining the U.S. data. The candidate variables are **budget balance** (general government saving, BB), **current (trade) balance** (CA), and **capital and financial account balance (including change in reserves, FA) or financial account as noted** early. The data are measured in **USD billions**, and scaled by **Gross Domestic Product (GDP) offsetting** the price element. The data sources are from (i) OECD Economic Outlook (for BB , CA , and GDP), and (ii) OECD Main Economic Indicators (for FA) (Web CEIC Data Manager Data) over the sample period 1960Q1 - 2013Q1. The results of unit root tests inform that the degree of integration, $I(d)$ of these three variables are inconclusive as classified between $I(0)$ and $I(1)$.⁸ This observation supports the appropriateness of ARDL (autoregressive-distributed lag) procedure to cointegration analysis (Pesaran, Shin, & Smith, 2001). According to (Pesaran & Pesaran, 1997), this procedure avoids the pre-testing problems associated with standard cointegration analysis which requires the classification of the variables into $I(0)$ and $I(1)$ (Pesaran & Pesaran, 1997, pp. 302-3). The error correction version of the ARDL models is written by the following equations (5)-(7)⁹:

$$\Delta BB_t = c + \sum_{i=1}^4 a_i \Delta BB_{t-i} + \sum_{i=0}^4 b_i \Delta CA_{t-i} + \sum_{i=0}^4 c_i \Delta FA_{t-i} - \beta_1 BB_{t-1} + \beta_2 CA_{t-1} + \beta_3 FA_{t-1} + e_t \quad (5)$$

$$\Delta CA_t = c + \sum_{i=1}^4 a_i \Delta BB_{t-i} + \sum_{i=0}^4 b_i \Delta CA_{t-i} + \sum_{i=0}^4 c_i \Delta FA_{t-i} - \beta_1 CA_{t-1} + \beta_2 BB_{t-1} + \beta_3 FA_{t-1} + e_t$$

⁸ Both of the Augmented Dickey-Fuller (ADF), and Phillips–Perron (PP) unit root tests suggest that the CA is non-stationary, $I(1)$, but the FA is stationary, $I(0)$. However, the BB variable is found to be inconclusive since the ADF suggests stationary, $I(0)$, while the PP test shows non-stationary, $I(1)$. The computed statistical results are not reported here, but they are available upon request.

⁹ As rule of thumb of using quarterly data, a lag length of four is included.

(6)

$$\Delta FA_t = c + \sum_{i=1}^4 a_i \Delta BB_{t-i} + \sum_{i=0}^4 b_i \Delta CA_{t-i} + \sum_{i=0}^4 c_i \Delta FA_{t-i} - \beta_1 FA_{t-1} + \beta_2 CA_{t-1} + \beta_3 BB_{t-1} + e_t$$

(7)

As informed by the triple deficits relation equation (4) (in Section 2), there exists at least a long run relationship between BB , CA , and FA , for examples, $CA - BB \sim I(0)$ (twin deficits hypothesis), and $FA - CA \sim I(0)$ (interdependence hypothesis). The third deficit (financial deficit) can be established by the two relations i.e. $FA - CA - BB \sim I(0)$, and/or $FA - BB \sim I(0)$. Generally, the ARDL procedure involves the F-statistic for testing the significance of lagged levels of the variables in the error correction form of the underlying ARDL model i.e. equations (1) – (3). It is to reject the null hypothesis $H_0: \beta_1 = \beta_2 = \beta_3 = 0$ (i.e. there exists no long-run relationship between BB , CA , and FA). If the computed F-statistics falls outside the critical values (band), a conclusive decision can be made (reject or not the null hypothesis). We do reject the null hypothesis of no long-run relationship if the computed F-statistic exceeds the upper bound of the critical value band, *vice versa*. If the F-statistic falls within the critical value band, no conclusion can be made and there is a need to carry out unit root tests in order classify the underlying variables are $I(0)$ or $I(1)$. Since $F(FA/CA, BB) = 9.065$ exceeds the upper bound of the [1%] critical value band (6.309), we can reject the null of no long-run relationship between BB , CA , and FA (see, Table 2) It is not the case for $F(BB/CA, FA)$, and $F(CA/BB, FA)$. However, (Bahmani-Oskooee & Brooks, 1999) noted that if the lagged error-correction term (i.e. $-\beta_1$, the parameter of BB_{t-1} , CA_{t-1} , and FA_{t-1}) turns out to be negative and significant, cointegration is supported.¹⁰ The error correction term of the relations $BB - CA - FA$, and $FA - CA - BB$ is in expected sign with small p -value (less than 0.01) rejecting the null hypothesis of no long-run relationship between BB , CA , and FA , and that CA can be treated as the ‘long-run forcing’ variables for the explanation of BB and FA . The existence of (at least) a long-run relationship provides empirical evidence of the so-called triple deficits hypothesis for the case of U.S., in the long-run.

¹⁰ Also, see (Kremers, Ericsson, & Dolado, 1992, p. 341) that the ECM statistic can generate more powerful tests than those based upon the DF statistic applied to the residuals of a static cointegrating relationship as the DF statistic imposes a possibly invalid common factor restriction.

Table 2 ARDL Bounds Testing Approach to Cointegration

	F-statistic	Critical values bounds			Error-Correction Term (<i>p</i> -value)
		<i>I</i> (0)	<i>I</i> (1)		
F(BB CA, FA)	3.605	3.182	4.126	10%*	-0.058 (0.002)
F(CA BB, FA)	1.732	3.793	4.855	5%**	0.047 (0.259)
F(FA CA, BB)	9.065***	5.288	6.309	1%***	-0.822 (0.000)

Notes: The critical values bounds are taken from Table F Case II: Intercept and no trend (Pesaran & Pesaran, 1997, p. 478) with $k = 2$.

Another time series approach that can be used to validate the triple deficits hypothesis is to identify the directions of causality (in Granger's sense) among the three variables *BB*, *CA*, and *FA*. Again, by considering the identification problem associated with standard unit root tests (as noted early), we apply the non-causality testing approach proposed by (Toda & Yamamoto, 1995) that irrespective of whether the variables are $I(0)$, $I(1)$ or $I(2)$, non-cointegrated or cointegrated of an arbitrary order.¹¹ Table 3 report the test statistics and their *p*-values. The test statistic fails to reject the null of *BB* does not Granger-cause *CA* (denoted as *BB* \nrightarrow *CA*) with a large *p*-value, 0.358. A positive finding is occurred that a causal relation is running from *CA* to *BB*, as well as from *CA* to *FA*. The directions of causality are not the case as identified in *a priori*, i.e. *BB* \rightarrow *CA* \rightarrow *FA*. However, given the well-documented empirical support of twin deficits hypothesis in U.S., the evidence of causality from *CA* to *FA* is sufficient to conclude the triple deficits hypothesis is tentatively hold, in the short-run.

Table 3 Tri-variate VAR($d + 1$) Causality Tests (Toda & Yamamoto, 1995)

Null hypothesis	F-statistic (<i>p</i> -value)
<i>CA</i> \nrightarrow <i>BB</i>	3.343 (0.011)
<i>FA</i> \nrightarrow <i>BB</i>	0.320 (0.864)
<i>BB</i> \nrightarrow <i>CA</i>	1.099 (0.358)
<i>FA</i> \nrightarrow <i>CA</i>	0.906 (0.462)
<i>CA</i> \nrightarrow <i>FA</i>	9.620 (0.000)
<i>BB</i> \nrightarrow <i>FA</i>	0.695 (0.596)

Notes: ' \nrightarrow ' stands for 'does not Granger-cause'. d is the optimum lag length of VAR. We consider 1 4 lag intervals for endogenous by considering the rule of thumb of using quarterly data.

4. Conclusions

This study extends the well-examined hypothesis in international macroeconomics i.e. twin deficits hypothesis by examining the third deficit of the capital and financial account (FA), or it is named as triple deficits hypothesis. The empirical results of U.S. data support the tri-deficits phenomena based on a positive finding of cointegration tests that budget balance

¹¹ We do not outline the causality testing procedure since it has been widely applied by empirical researchers. See, (Toda & Yamamoto, 1995) for further reference.

(BB), current account balance (CA), and capital and financial account balance (FA) are moving together in the long-run. Also, the triple deficits hypothesis is supported by the causality results. This study sheds new light on the existing literature and it is important for policy implication, especially the U.S. experience. The fiscal year 2014 budget focuses on \$1.8 trillion of additional deficit reduction over 10 years with a total of deficit reduction achieved to \$4.3 trillion, or deficit is reduced to 2.8% of GDP by 2016 and 1.7% by 2023.¹² As noted that the U.S. current account deficit has been increasing as a percentage of GDP since the early 1990s, and it is conceptually “financed” by the U.S. borrowing abroad (Coughlin, Pakko, & Poole, 2006). More generally, this study recommends the U.S. priority to improve her current account either by exports expansion or imports reduction than of cutting government spending as the current account is the main cause to fiscal and financial accounts deficits, in the short-run.

It is to note that this seminal work is preliminary with a few of limitations. First, the so-called income-expenditure approach employed in this study captures only the real sector (i.e. goods and services market), in the triple deficits analysis, while the nature of financial sector is being ignored. To recognize the role of financial sector, an alternative theoretical derivation - portfolio balance approach from the general equilibrium perspective can be considered. Secondly, positive support on triple deficits is documented by the U.S. data. However, another country may tell opposite story. To further apply the triple deficits hypothesis, we suggest more sample countries either from developed countries or developing countries. By the same token, panel estimation approach on a group (or a few groups) of countries is essentially important for comparison purpose, such as between developed and developing countries. The U.S. triple deficits hypothesis by the ARDL approach to cointegration, and causality tests may be subjected to some methodology concerns. This [third] concern is that different cointegration methods may reveal different results, especially to capture the structural break(s) in the testing specifications, for example. The short-run dynamic casual patterns can be extended to the conventionally employed impulse response function, and variance decomposition based on a causal approach. Lastly, this study is empirical and more conceptual explanations on the nature of triple deficits are missing. The further work is needed to explain the potential causes of the triple deficits phenomenon, theoretically in general, or by country’s settings.

¹² <http://www.whitehouse.gov/omb/overview> (Accessed December 26, 2013)

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