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**The medium-term determinants of the
current account: the study of the “savings
glut” and the “twin deficits” arguments**

Bachelor Thesis within Economics

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Abstract

Over the last decade, the world economy has been characterized by an alarming escalation of global current account imbalances. The United States and many of other high-income countries have been running huge current account deficits; according to basic accounting principles, these deficits have to be counterbalanced by increasing current account surpluses in other parts of the world. The latter (current account surpluses) are mainly incurred by newly industrialized economies in the East Pacific and rapidly developing oil exporters.

The paper investigates the medium-term determinants of the current account based on the sample of 24 countries over the period of 1990-2004. The choice of explanatory variables for the analysis is backed up by the two theories of current account imbalances, namely, the “savings glut” and the “twin deficits” arguments. The results of the regression model show that both above-mentioned theories can be credited for the emergence of global current account imbalances. Moreover, our findings suggest some remedial measures to improve the situation based on the mix of policy tools from both “savings glut” and “twin deficit” perspectives.

Keywords: global current account imbalance, “twin deficit” argument, “savings glut” hypothesis, trade openness, real GDP growth, financial development, budget balance, current account deficit/surplus.

Abbreviations

ADB – Asian Development Bank

BB/GDP – Budget Balance-to-GDP

C → Consumption

CA – Current Account

CA/GDP – Current Account-to-GDP

EU – European Union

EX → Export

FRBSF → Federal Reserve Bank of San Francisco

G → Government Expenditure

GDP → Gross Domestic Product

GDPG – Real GDP Growth

I → Investment

IM → Import

IMF – International Monetary Fund

LDC – Low Developed Country

NAFTA → North American Free Trade Agreement

NIE – Newly Industrialized Economy

OECD – Organization for Economic Co-operation and Development

STOCKM – Stock Market Value Traded-to- GDP

TRADEOP- Trade Openness

WDI – World Development Indicators

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1 Introduction

Heavily borrowing from European economies to finance industrialization in the aftermath of the Civil War, the United States was a debtor nation throughout the last half of 19th century; however, following its rapid economic development, the country became a creditor for most of the 20th century (up until the 1980s). The country switched its position as a creditor to a significant net debtor from 1982 on. Other high-income countries, notably, Australia, United Kingdom and Ireland, are currently among the countries with the highest CA deficits. Meanwhile, a group of rapidly developing East Asian economies (South Korea, Singapore, Taiwan, and Hong Kong) and major oil exporters (Saudi Arabia, Norway, United Arab Emirates, Kuwait) have incurred huge current account surpluses over the last decade.

It is argued that global current account imbalances threaten the stability of the world economy (Bank of Canada, 2003). Such imbalances create a pattern of mutual interdependence between both sides: “deficit” economies rely heavily on foreign capital inflows from “surplus” states whereas the latter confide in the stability of financial markets and macroeconomic environment in “deficit” economies. A sequence of events, negatively affecting the above-mentioned interdependence patterns, might seriously endanger growth prospects and stability of both the involved sides and the rest of the world. Currently, there is an extensive public debate on the origins of the global imbalances, their potential threats and, most importantly, remedial measures to counteract imbalances’ (possible) negative consequences.

The ongoing global economic crisis has partially confirmed the fears that the persistence of global imbalances’ escalation might imply serious negative macroeconomic consequences. What kind of solutions can be proposed taking into consideration both a high rate of globalization and individual macroeconomic environments of the states?

1.1 Purpose

The main purpose of this thesis is to analyze possible medium-term determinants of the current account behavior based on the suggestions from the “twin deficit” and the “savings glut” hypotheses. Additionally, inferences about remedial measures to improve the situation with the global current account imbalances are made.

1.2 Outline

The two main arguments described and explained in light of the previous research work in section 2. Section 3 of the thesis provides some basic accounting and macroeconomic tools for the theoretical framework behind the regression model. Section 4 discusses the choice of the explanatory variables while section 5 specifies the regression model. Further, section 6 presents regression results and analysis of the main findings. Finally, section 7 closes the discussion with the summary of the main findings.

2 Background and previous research

Various hypotheses are being put forward to explain the persistence of the global current account imbalances over the last decade. Generally, prominent economists and politicians focus on two large groups of countries: high CA deficit, high- income Western economies, with a special focus on the United States, and high CA surplus NIEs and major oil exporters.

Public debate on global imbalances revolves primarily around two theories: **the classical “twin deficits” and the relatively new “savings glut” arguments**. The former attributes the escalation of the current account deficits in the affected developed states to the impact of expansionary fiscal policies advocated by high-income economies. On the other hand, some prominent sceptics of the “twin deficits” argument like Greenspan (2005a, b) and Ferguson (2004) believe that the effects of the fiscal balance changes on the current account behaviour are quite negligible. Assuming that the “twin deficits” is a valid argument, what are the mechanisms through which budget balance changes affect the current account behaviour?

In the first expansionary fiscal policy scenario, increased government spending induces domestic residents to save more in the anticipation of higher future taxes, which will need to be raised up as the country will have to repay its debt incurred to boost current government expenditures (Baxter, 1995). Saving can take place in two different ways: by spending less or by increasing working hours, which leads to a higher income; “to the extent that people choose the second route and increase the hours they work, they make the capital stock more productive, which fosters more private investment” (FRBSF, 2005). As the increases in investment and savings are partially offset against each other, the current account goes down in response to the decrease in the budget balance.

In the second expansionary fiscal policy scenario, decreased taxes are not matched by simultaneous downward adjustments in public expenditure. Tax rate cuts induce domestic residents to work harder in order to increase their after-tax disposable income, boosting “both output and the productivity of capital” (FRBSF, 2005). This weakens the initial effect of tax cuts on the budget balance as private savings portion increases the overall national savings. However, tax cuts also lead to higher investment rates. Once again, savings and investment tend to offset each other; hence, the current account deteriorates as the budget balance deficit persists. The “twin deficits” argument, therefore, stresses the importance of domestic economic policies as an important driving factor behind the CA balance fluctuations.

The “global savings glut” argument, mainly advocated by Bernanke (2005, 2007) and Clarida (2005a, b), diverts away from the “twin deficits” in the sense that domestic economic policies are less relevant for the CA behaviour explanation in comparison to international savings/investment flows. Bernanke argues that following the Asian financial crisis of 1997-1998, many Asian economies and major oil-exporting states have focused on accumulating large reserves of foreign currencies and on encouraging a large volume of exports to western countries. These strategies have helped to boost current account surpluses, particularly in the NIEs (South Korea, Taiwan, Singapore, and Hong Kong). On the other hand, the oil price fever of 2001- 2008 brought multi-billion profits to the largest oil producers/exporters such as Saudi Arabia and Kuwait; these profits have far exceeded domestic current consumption expenditures, motivating firms to look for lucrative investment opportunities abroad.

Excess savings are then being invested into assets in countries with well-developed financial markets and low political risks (e.g., the United States). Accordingly, this has favourably affected domestic wealth and consumption patterns in the West while savings rate there went down, and current account deficits started to rise. The “global savings” argument implicitly puts the blame for current imbalances on economies with high savings rate policies, particularly those in the East Pacific region.

However, it is possible for the two approaches to complement rather than contradict one another. This suggestion is explained by using a simple open macro model below:

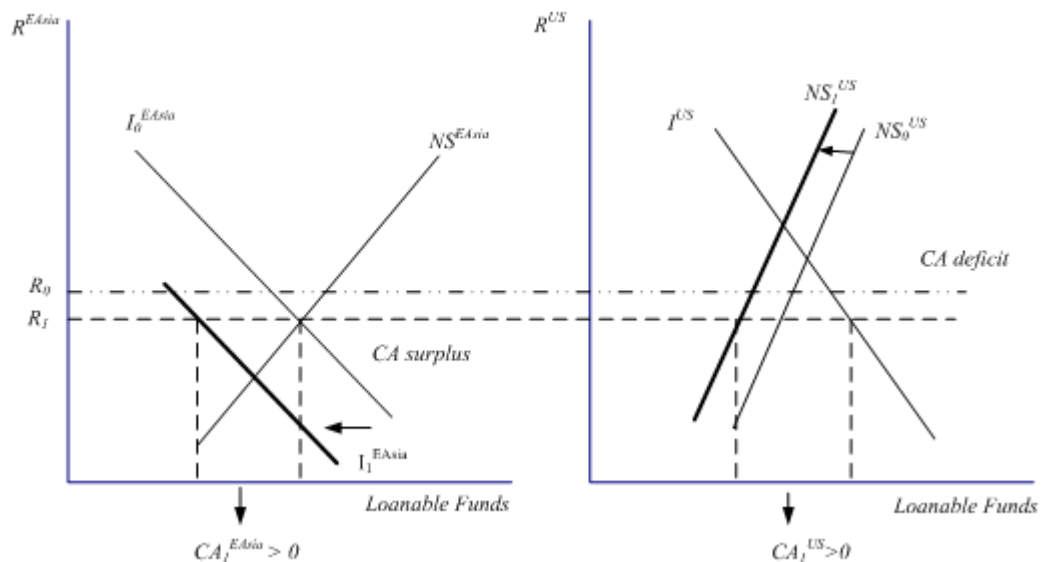


Figure 1. National Saving, Investment, and Current Account Balances. Adapted from Chinn & Ito, 2008

Two separate graphs are given for the US and aggregate East Asia. NS and I are national savings and investment schedules, respectively; the horizontal and vertical axes represent loanable funds and real interest rates. Initially, the equalized world real interest rate is R_0 , the US has a current account deficit and East Asia runs a surplus. The NS curve is shifted when the US employs an expansionary fiscal policy and the investment curve in Asia changes its position in the aftermath of the Asian financial crisis. As a result, the world real interest rate is driven to the level R_1 due to the combination of events at the international scale. Thus, according to Chinn and Ito, this model helps to explain the investment shortage in East Asia and savings drought in the United States simultaneously.

3 Theoretical framework

To check the implications of “savings glut” and “twin deficit” arguments for the current account behavior, several national income accounting concepts are introduced in this section. Although not strictly belonging to economic theory, these underlying concepts intricately link basic accounting tools with macroeconomic reasoning behind the two above-mentioned theories. The discussion and graphs below are based on S. Suranovic’s “International Finance Theory and Policy” online book, chapter 5.

3.1 Introduction to national income identity: closed economy

The simplest version of a closed economy consists of four different economic agents: households, businesses, government, and financial intermediaries. Conventional macroeconomics textbooks tend to undermine the role of financial institutions; nevertheless, we do retain them for the purpose of our analysis, as they are largely responsible for understanding the significance of savings-investment framework.

Arrow C in figure 2 represents consumption expenditures by households on services and goods provided by firms. Cash flows from firms are distributed among consumers in the form of wage compensation for the labor services (disposable income after taxes).

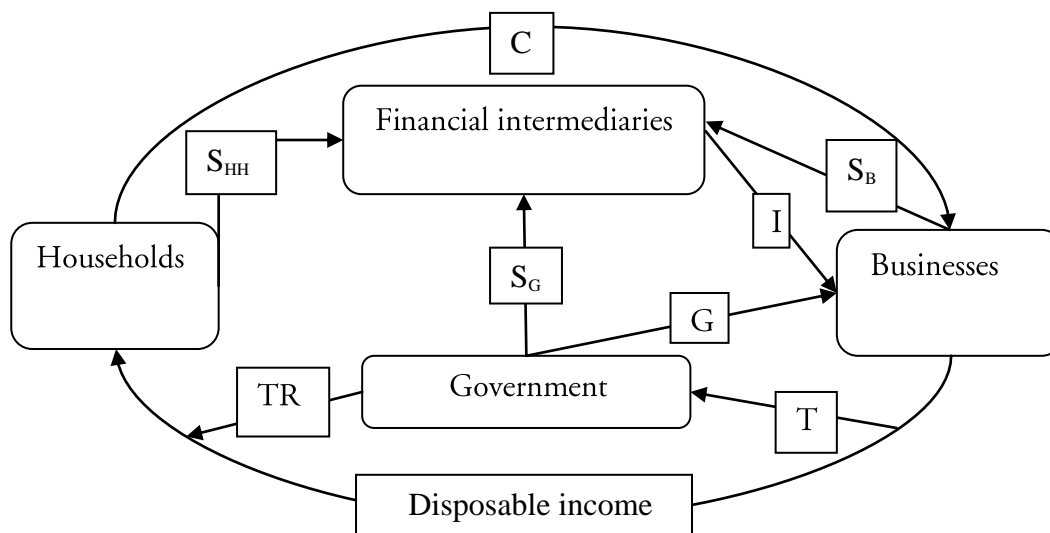


Figure 2. National income account: closed economy

In the absence of efficient financial intermediaries and international trade, disposable income is roughly equal to spending on domestic production. However, when financial agents, such as commercial banks, pension and mutual funds, and investment companies, are included in

the analysis, it is possible for economic agents to save a certain portion of their earnings. Savings by the household sector are indicated by (S_{HH}) and primarily flow to savings or pension accounts. Firms' profits are generally composed of retained earnings, used to replace depreciated equipment and to invest in new capital, and business savings (S_B). For simplicity, we assume that all savings from households and businesses flow through the financial system to facilitate lending/borrowing by economic agents: financial institutions channel the funds, raised from savings, to finance (I), investment.

Finally, the government sector enters the model. Government collects money from the system, represented by the (T) arrow, taxes. A part of the government expenditures is “injected” into the circular flow in the form of transfer of payments (TR) that refer to various social security and unemployment benefits, whereas another part is exchanged for goods and services from businesses (G). The latter represents spending on education, military defense, infrastructure, etc.

Taxes need not be equal to expenditures: any leftover is assumed to be invested into the financial system and indicates government savings (S_G).

The model is summarized in several important equations and inequalities below.

1. Private savings are equal to the sum of households' and firms' savings:

$$S_P = S_{HH} + S_B \quad (3.1.1)$$

2. Government savings are the difference between collected taxes and various public expenditures:

$$S_G = T - TR - G \quad (3.1.2)$$

3. If $S_G > 0$, there is a government budget surplus. Conversely, $S_G < 0$ implies a government budget deficit.

3.2 National income identity extended: open economy

The income identity is subject to change if the autarky condition is waived. Figure 3 includes EX and IM arrows to show the cash flows in and out of the economy, respectively, when exports to and imports from other countries are taken into consideration.

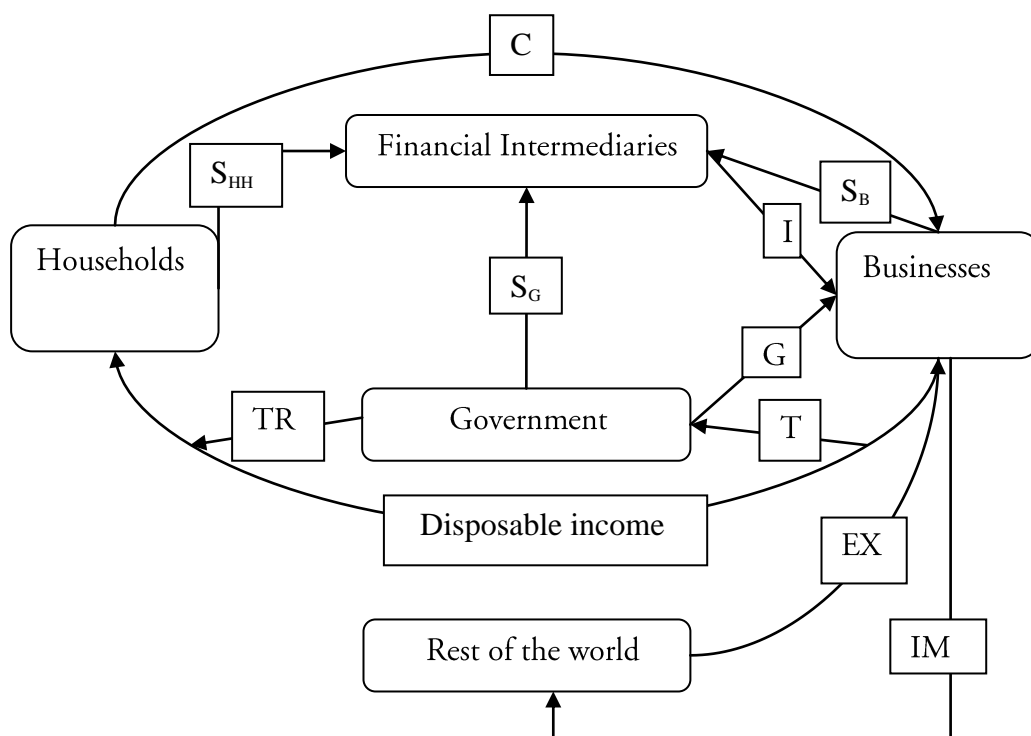


Figure 3. National income account: Open Economy

Therefore, the national income identity is of the following form:

$$\text{GNP} = C + I + G + \text{EX} - \text{IM} \quad (3.2.1)$$

GNP was chosen over GDP to properly define the international money flows.

As in the case with the budget balance, the current account¹ (EX-IM) may not be perfectly balanced and can be represented either by a deficit (EX-IM < 0) or a surplus (EX – IM > 0). If there is a current account deficit, the country must borrow money from abroad to finance its imports. The CA deficit is assumed to be offset by foreign savings, S_F (figure 3):

$$S_F = \text{IM} - \text{EX} \quad (3.2.2)$$

The offset of the current account deficit “gap” by foreign savings is assumed, given our particular case study with a major focus on the United States and NIEs. Having accumulated huge reserves of foreign exchange reserves in the aftermath of the Asian financial crisis, the emerging Asian economies have indeed been directing a huge portion of their savings towards the investment in Western financial markets, especially those of the United States.

¹ For simplicity, net interest payments and net unilateral transfers are omitted in describing current account components

The savings from various sectors are summarized by the following equation:

$$S = S_p + S_G + S_F \quad (3.2.3)$$

where S_p – private savings, S_G – government savings, S_F – foreign savings.

3.3. “Twin deficit” and “savings glut” identities

To derive the so-called twin-deficit argument, we substitute equations 3.1.1, 3.1.2 and 3.2.2 into the equation 3.2.3 and get,

$$S_p + T - TR - G + IM - EX = I \quad (3.3.1)$$

or rearranging,

$$(IM - EX) = (G + TR - T) - (S_p - I) \quad (3.3.2)$$

Equation 3.3.2 is the “twin deficit” argument. It shows that the current balance account, $(IM - EX)$, is related to the budget, or fiscal, balance, $(G + TR - T)$. Graphically, the situation is depicted in figure 4, with real interest rates on the vertical and income on the horizontal axes. According to the Mundell-Fleming model (Dornbusch, 2004), if the budget deficit is decreased through decreases in government expenditures, the IS (spending) curve shifts to the left. Both income and interest rates go down in the short- and medium-term runs, causing depreciation of the domestic currency. Currency depreciation takes place, as there is high capital mobility away from the country to take advantage of higher interest rates abroad. The weakened currency also makes domestic goods/services cheaper to foreigners; as a result, net exports increase. Thus, the current account is favorably affected through improvements in the budget balance.

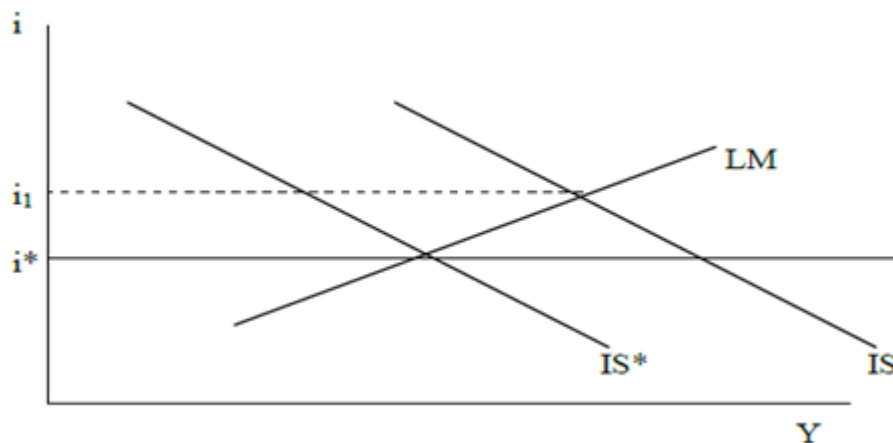


Figure 4. Mundell – Fleming model.

On the other hand, equation 3.3.2 may also be called a “savings glut” argument as it shows that the behavior of the current account is partially determined by savings-investment framework, too. According to the Ricardian equivalence theorem, changes in the budget balance do not affect the current account due to corresponding changes in savings/investment levels.

Savings –investment argument is

$$S_F = I - S_p - S_G \quad (3.3.3)$$

where S_F indicates world savings, S_p and S_G conventionally stand for private and government savings. Logically,

$$CA = S_p + S_G - I \quad (3.3.4)$$

4 Methodology

The purpose of the empirical section is to test the validity of “savings glut” and “twin deficit” hypotheses for a small sample of countries over the period of 15 years (1990-2004). The specificity of this paper stems from the fact that we are primarily interested in focusing on medium-term (defined as a period in between two and twenty five years) determinants of current account, whereas the bulk of academic research is concentrated solely on the long-run implications of the two above-mentioned theories. This is especially relevant in the light of extensive public debate on current account policies as the current account deficit is rapidly escalating in (mostly) US/Western Europe balanced by surplus surge in East Asia and oil-exporting countries. Moreover, we address the relative strength of “savings glut” versus “twin deficit” arguments and the potential of their policy tools as medium-term “remedial” measures.

4.1 Regression model: theoretical background and method

The main purpose behind the regression analysis is to test the hypothesis that both arguments at hand can simultaneously explain global current account imbalances in contrary to the general opinion. The dependent variable is the current account to GDP ratio, further referred to as CA/GDP. Academic research is based on a number of variables to explain the current account behavior (see Chinn & Ito, 2008, Chinn & Prasad, 2003). However, most of them are quite insignificant or highly correlated. Therefore, after careful consideration, we have chosen the budget balance to GDP ratio to test the “twin deficit” argument while GDP growth, trade openness, and financial development are testing for the “savings glut” argument (Bernanke, 2005). In addition, two control dummy variables are specified. The data covers a sample of 24 countries² over the period of 1990-2004 and was retrieved from various sources, including IMF, ADB, World Bank. For the descriptive statistics on the variables, please, refer to appendix 2.

4.1.1 “Twin deficit” argument: budget balance to GDP (BB/GDP)

Budget balance to GDP, or fiscal balance, is defined as a ratio of the difference between government revenues (taxes and proceeds from asset sales) and government expenditures to Gross Domestic Product. It is the main policy tool of the “twin deficit” argument. An economy happens to have a double or ‘twin deficits’ if it has a current account deficit and a

² See appendix 1.

fiscal deficit. This means, the nation would be borrowing from foreign economies in exchange of foreign goods and services. According to the classical “twin deficit” argument, the impact of budget balance on current account is unambiguous in the sense that an increase in fiscal balance tends to improve the current account (figure 4). However, the scale of the effect in the medium-and long-runs is rather wide: a 1% point increase in BB/GDP leads to a range of 0.1 to 0.5 % point increase in CA/GDP according to different sources (OECD, 2005; Faruquee et al., 2007). We generally expect a positive relationship between BB/GDP and CA/GDP in the medium- run. The data for BB/GDP was taken from International Financial Statistics database, IMF.

4.1.2 “Savings glut” argument: Real GDP Growth (GDPG)

Federal Reserve Chairman B. Bernanke, an ardent “savings glut” argument supporter, believes that current deficit “disease” in Western economies can be cured if, among other things, macroeconomic stability and growth are promoted further (Bernanke, 2005, 2007). According to the “stages of development” theory by W.W Rostow, developing countries tend to incur high volume of capital imports from advanced economies (Rostow, 1960). This assures that most of the LDCs at the intermediate stage of development typically run current account deficits. When the advanced stage of development is achieved, capital accumulation is no longer relevant as technological innovations insure economic growth in the long run; moreover, savings rate is high as economies are expected to pay off the debt for the past imports of capital. Thus, so far, economic theory postulates that high-income economies should run CA surpluses.

It seems quite logical to propose a positive relationship between CA/GDP and GDP growth rate. However, “the stages of development” theory is quite outdated and does not tell the whole story. As confirmed by empirical research and explained by figure 5, the GDP growth – CA/GDP relationship expected to be negative (Bagnai & Manzocchi, 1999). Real GDP growth is affected by changes in two factors, labor force and productivity. As labor force or, alternatively, population base grows, both savings and investment are affected in the negative way; as a result, the current account balance decreases. However, the effect of productivity growth on the current account is theoretically uncertain: while it definitely increases investment, savings rate might be affected either positively or negatively through the foreign asset –to –GDP ratio, depending on who represents the bulk of the saving population in the economy – young or old people. Empirically, Bagnai and Manzocchi argue that there is strong evidence that the productivity effect on the CA balance is negative. Taking into

consideration the impact of both factors, the current account assumed to decrease as GDP growth takes place. The data for real GDP growth rates was taken from World Indicators database, World Bank.

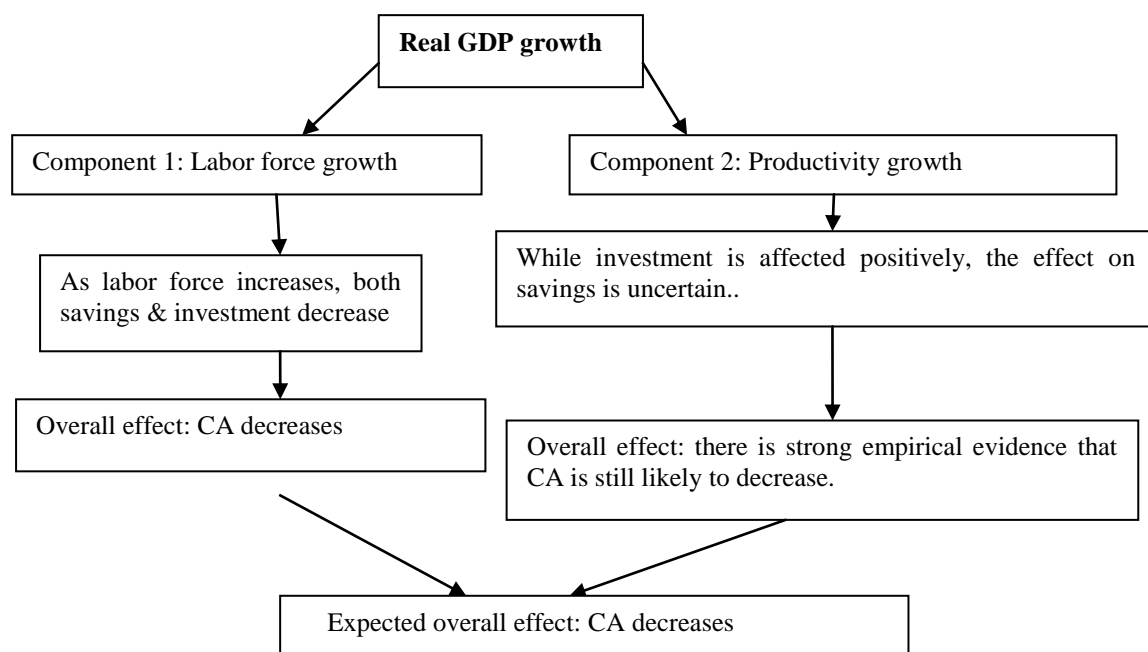


Figure 5. Current account - real GDP growth framework. Adapted from Bagnai & Manzocchi, 1999.

4.1.3 “Savings glut” argument: trade openness (TRADEOP)

Renowned “savings glut” advocates, namely, Bernanke (2005, 2007) and Clarida (2005 a), consider trade liberalization of Asian economies as a potential explanation behind the CA deficit surge in the US and other affected high-income countries. The logic of the argument seems rather appealing and is statistically relevant: for instance, the data for Singapore and Hong Kong (table 1) shows that there might be a positive relationship between the two variables, CA (current account) and TO (trade openness). Whether there is such a relationship or not is tested by our model. Trade openness data measured as a ratio of the sum of exports and imports to GDP. Current account conventionally presented as a percentage of GDP. The data for trade openness obtained from Penn World Tables based on World Bank databases.

Table 1. Current account and trade openness data for Singapore & Hong Kong, 1990-2004

Country	CA/GDP %	CA/GDP %	% Change	TO/GDP %	TO/GDP %	% Change
	1990	2004		1990	2004	
Singapore	8.475	16.704	+97.1	358.11	427.88	+19.5
Hong Kong	6.196	9.481	+ 53	255.38	371.23	+45.4

4.1.4 “Savings glut” argument: financial development (STOCKM)

Financial markets are a tremendously important tool for channeling funds between nations and, therefore, have a certain impact on a savings-investment analysis framework. While economic theory generally predicts a positive relationship between financial development and level of investment (Pelgrin & Schich, 2002), two arguments account for financial development-savings interaction. The first merely states that financial markets’ sophistication eventually reflected in increased savings; the second, advocated by Bernanke in particular, argues that financial development results in decreased precautionary savings, and this should lessen the overall savings rate in an economy (Chinn & Ito, 2008). Moreover, the economies with low-developed financial markets generally prefer to invest funds in the investment institutions in the well-developed economies with sophisticated financial markets and low political risks. Thus, we cannot “detect” a positive or negative relationship between CA/GDP and financial development a priori – it depends on the relative strength of savings versus investment response and is tested by the regression model. Financial development is measured by stock market value traded to GDP ratio. The data comes from the financial database by Beck, Demirgüç-Kunt, and Levine (2001).

4.1.5 Dummy variables (dm1...dm23, dum2).

The first group of dummy variables designated as dm1 to dm23 for 23 countries were added to the regression analysis in order to control for the intercepts in the panel regression model. Moreover, there is a separate dummy (dum2), which takes on the value of 1 for the period 1990-1996 and 0 otherwise (1997-2004), to check for the implications of the Asian financial crisis on CA behavior among the sampled countries.

5 Regression model specification

5.1 Model introduction

The regression model tests the null hypothesis of no individual impact of the explanatory variables, specified in section 4, on CA/GDP against the alternative hypothesis stating vice versa.

The equation for the empirical test is:

$$\left(\frac{CA}{GDP}\right)_j = \beta_1 + \beta_2 \left(\frac{BB}{GDP}\right)_j + \beta_3 (GDPG)_j + \beta_4 \ln(TRADEOP)_j + \beta_5 \ln(STOCKM)_j + \beta_6 (dm1)_j + \dots + \beta_{28} (dm23)_j + \beta_{29} (dum2)_j + \varepsilon_j$$

where,

β_1 – intercept coefficient

$\frac{CA}{GDP}$ – Current account to GDP ratio

$\frac{BB}{GDP}$ – Budget balance to GDP ratio

GDPG – Real GDP growth rate

TRADEOP – $\frac{\text{exports} + \text{imports}}{GDP}$

STOCKM – $\frac{\text{stock market value traded}}{GDP}$

dm1...dm23 – intercept dummy variables,

dum2 – period dummy variable, = value 1 – period 1990-1996, value 0 – period 1997-2004

ε_j – error term.

The regression is performed on a pooled data sample of 24 countries over the period of 1990-2004 by using the ordinary least squares (OLS) method in EVIEWS 5.

5.2 Critique of the model

In general, extra attention was paid to previous academic research and economic theory when choosing a set of explanatory variables.

However, one point might generally undermine our analysis. The country sample consists of predominantly high-income countries, NIEs and several developing Asian economies, like India and Indonesia. Unfortunately, it was not possible to obtain all the necessary data for other countries: for instance, there are virtually no credible budget deficit/trade

openness/financial development indicators for oil-exporting economies in the Middle East, which have incurred huge current account surpluses over the recent years, and, thus, would be very important for our analysis. Similarly, Taiwan is the only NIE not presented in the list, as legally it is a part of China and not all the necessary information is available separately.

6 Regression results and analysis

The following results were obtained from the regression model:

Table 2. Regression results.

Dependent Variable: CA
 Method: Panel Least Squares
 Sample: 1990 2004
 Total panel (balanced) observations: 360
 Cross-sections included: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-37.04991	6.940343	-5.338339	0.0000
LN(TRADEOP)	9.312364	1.624331	5.733046	0.0000
LN(STOCKM)	-0.650966	0.261292	-2.491339	0.0132
BB	-0.202334	0.070439	-2.872468	0.0043
GDP	-0.239699	0.065542	-3.657207	0.0003
DM1	-2.346896	1.225587	-1.914916	0.0564
DM2	-2.714428	1.684119	-1.611779	0.1080
DM3	4.916153	1.116258	4.404136	0.0000
DM4	4.850693	1.242467	3.904083	0.0001
DM5	2.622634	1.142090	2.296347	0.0223
DM6	-1.688658	1.276389	-1.322996	0.1868
DM7	3.026670	1.256262	2.409267	0.0165
DM8	0.453689	1.340288	0.338501	0.7352
DM9	-4.992083	1.118783	-4.462065	0.0000
DM10	1.831628	1.258644	1.455240	0.1466
DM11	-7.315233	2.448302	-2.987880	0.0030
DM12	15.15801	2.382526	6.362161	0.0000
DM13	3.875338	2.884641	1.343438	0.1801
DM14	14.60446	2.363401	6.179425	0.0000
DM15	9.176846	2.174975	4.219288	0.0000
DM16	0.381681	1.089802	0.350230	0.7264
DM17	2.404365	1.215641	1.977858	0.0488
DM18	10.19497	2.131523	4.782950	0.0000
DM19	-5.020476	1.893487	-2.651444	0.0084
DM20	-4.442869	1.219357	-3.643617	0.0003
DM21	-1.618037	1.227194	-1.318486	0.1883
DM22	2.641394	1.464244	1.803930	0.0722
DM23	9.023112	1.547915	5.829202	0.0000
DUM2	-1.395615	0.489431	-2.851506	0.0046

R-squared	0.694163	F-statistic	26.83123
Adjusted R-squared	0.668291	Prob(F-statistic)	0.000000

To check for the overall significance of the sample regression, the results of the F-test are reported. The p-value of the F-statistic is sufficiently small to conclude that our model is significant at $\alpha = 1\%$ ³, that is, we can reject the hypothesis that the partial slope coefficients are equal to zero simultaneously. Moreover, the R-squared value implies that nearly 70% of the variance in the dependent variable (CA/GDP) is explained by the chosen explanatory variables; given that R^2 is in excess of 50% over the medium-term run, we would consider it as a fairly acceptable value.

The results indicate that coefficient signs for growth rate (GDPG) and trade openness (TRADEOP) are in accordance with prior expectations. The financial development variable (STOCKM) occurs to have a negative sign, which would generally reject “savings glut” argument proposition that financial development facilitates improvements in the current account balance. However, at $\alpha = 1\%$, the financial development variable is insignificant and, therefore, should not be interpreted. Although this does not lead to the conclusion financial development does not affect current account balance in the medium-term run, the model stresses the significance of budget balance, GDP growth and trade openness over the period of 15 years.

To recall, we have designated trade openness, GDP growth and financial development variables to test the “savings glut” argument. The statistically significant trade openness variable has an expected positive sign. The part of the CA/GDP change with respect to the change in trade openness can be explained by the embeddedness of terms-of-trade volatility in the trade openness data, which can affect the investment –savings framework. Chinn and Ito (2008) conclude that economies with highly volatile term-of-trade “might save more for precautionary reasons in order to smooth their consumption streams in the face of volatile income flows” – and a higher rate of savings might lead to an increased CA/GDP if offset by a sufficiently stable level of investment. On the other hand, an increase in CA/GDP can be attributed to a change in trade policies; this might occur due to a signing of some regional trade agreement (e.g., NAFTA) or weakening of tariff barriers. Unfortunately, it is not possible to determine whether the change in CA/GDP is temporary (as in the case of terms-of-trade volatility shock) or permanent (as in the case of trade policy changes). Nevertheless, the conclusion is that trade openness is a significant variable, at least partially supporting the validity of the “savings glut” argument in the medium-term.

³ α is fixed at 1% throughout the whole regression analysis section

The real GDP growth rate has an expected negative sign and is statistically significant at $\alpha = 1\%$, all in accordance with prior expectations: there are a number of prominent research papers and statistics confirming the significance of the negative relationship between GDP growth and CA/GDP. For instance, over the last decade, the US and Australian economies have been characterized by a relatively high growth rate with persistent current account deficits.

Finally, the findings for the core of the “savings glut” argument - financial development- have certain interesting implications. The stock market value traded -to- GDP variable is insignificant at $\alpha = 1\%$ and has a negative sign. If it were not for the insignificance of the variable, we would have interpreted the results in the following way: the development of the financial system leads to increases in the CA deficit or decreases in CA surplus, and, thus, deteriorates the CA balance. Certainly, we cannot make such conclusions in the light of the variable insignificance. Nevertheless, it cannot be inferred that the variable is not important for the analysis for the following four reasons. First, the probability of obtaining the determined stock market coefficient, 1.31%, is quite close to the fixed $\alpha = 1\%$, which makes the analysis rather inconclusive. Second, financial development is a relatively new possible determinant of CA/GDP, which started to get attention only after Bernanke’s propositions in 2005; so far, not many academic works consider financial development. Third, Bernanke himself particularly emphasized financial development might only be relevant in the long-run as it takes time for financial markets to develop (Bernanke 2005, 2007). Finally, there is no agreement on how financial development should be measured – our choice of stock market value trade-to-GDP is quite a bold proposition.

As for the “twin deficits” argument, the results are much more controversial. As is evident from the regression results, budget balance is a significant variable but has a negative sign, which creates confusion with respect to the interpretation of the results.

To shed some light on the CA/GDP- BB/GDP relationship two more regressions were run. The first one performs the cross-sectional analysis for year 1990 whereas the second one does the same for year 2004. The results of both regressions appear in appendix 3. Interpreting the results specifically with respect to budget balance, the variable is insignificant but has an expected positive sign. Therefore, we cannot rule out the possibility that budget balance is not an important determinant of the current account balance in the medium-term. However, due to the presence of 24 countries over 15 years, the data is highly variable and checking for statistical outliers is not an easy task. So far, the analysis with respect to the budget balance is inconclusive and demands further studies.

7 Conclusions

Concisely, our model has been surprisingly proved inconclusive with respect to the CA/GDP-BB/GDP relationship. According to the conventional “twin deficits” argument, the fiscal balance certainly plays a vital role as a macroeconomic factor determining the current account balance. Thus, some problems with the wrong functional form of the regression model might have produced the unanticipated sign for the budget balance coefficient. On the other hand, some recent academic papers from the 2000s, those by Ferguson (2004) and Greenspan (2005a, b) in particular, claim that the budget balance’s impact on the current account is quite small. So far, the conclusion is that the budget balance definitely cannot be ruled out of the analysis; therefore, “the twin deficits” argument is not discarded, and further analysis needs to be made.

Looking at the ‘savings glut’ argument, it can be inferred that one of our key medium-term determinants, financial development, does not convey a clear-cut message due to the lack of reliable academic research. Due to the insignificance of the results of our analysis, we cannot imply either a positive or a negative effect on the CA/GDP balance. For the GDP growth and trade openness effects on CA/GDP, the results came out according to the expectations. However, a single factor cannot possibly explain the resulting impact of trade openness on the CA/GDP: it could be temporary due to the terms-of-trade volatility shock or permanent from trade policy changes.

Now, holding an apprehension for both theories, we can realize the necessity of the improvement of government budget balance since it might deteriorate due to an ambitiously persistent expansionary fiscal policy, thereby directly influencing the fall in the CA balance. In parallel, to improve public savings, western governments can improve the trade openness either from terms of trade or tariff barrier elimination approach. This proposal is in line with Ben Bernanke’s ideas regarding the ways to reduce the US current account deficit by increasing public sector savings. Meanwhile, the issue of financial development as a major “medicine” to cure the ‘excessive savings’ disease of the emerging east could be re-considered in the line with Edwards (1996). On the other hand, as a remedial therapy to the global current account imbalances with a focus on the U.S, the upward shift in the productivity growth in the foreign countries’ non tradable goods sector, along with the depreciation of real trade-weighted dollar (Obstfeld, Rogoff, 2004) can certainly go hand in hand with the further deepening of our limited research.

Appendix 1. List of countries

1. Australia
2. Austria
3. Belgium
4. Canada
5. China
6. Finland
7. France
8. Germany
9. Greece
10. Hong Kong
11. India
12. Indonesia
13. Italy
14. Japan
15. Malaysia
16. The Netherlands
17. Philippines
18. Portugal
19. Singapore
20. South Korea
21. Spain
22. Thailand
23. United Kingdom
24. United States of America

Appendix 2. Descriptive Statistics for explanatory variables

Figure 1. Descriptive statistics for budget balance, in %

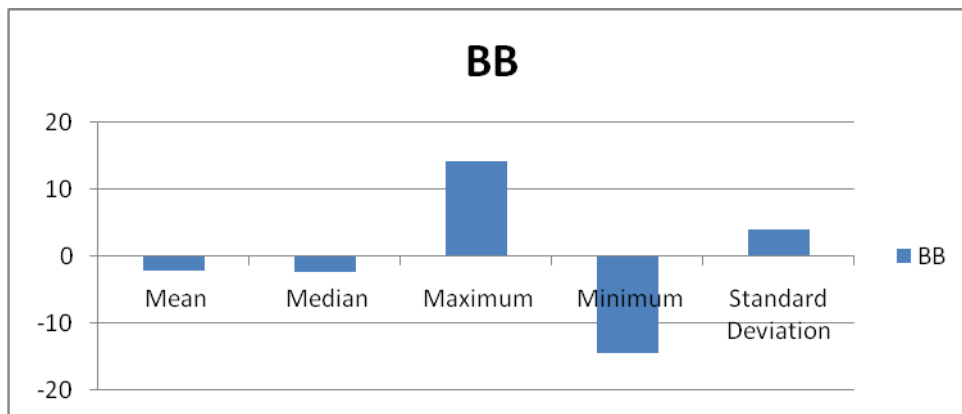


Figure 2. Descriptive statistics for trade openness, in %

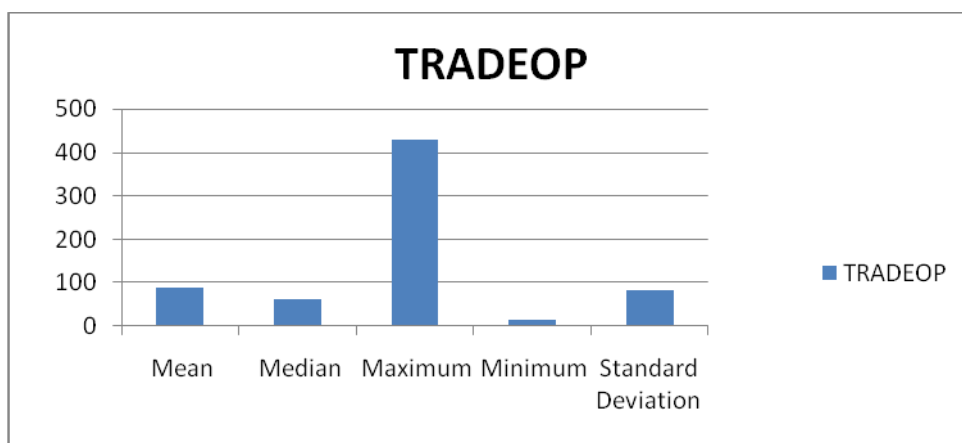


Figure 3. Descriptive statistics for stock market value traded, in %

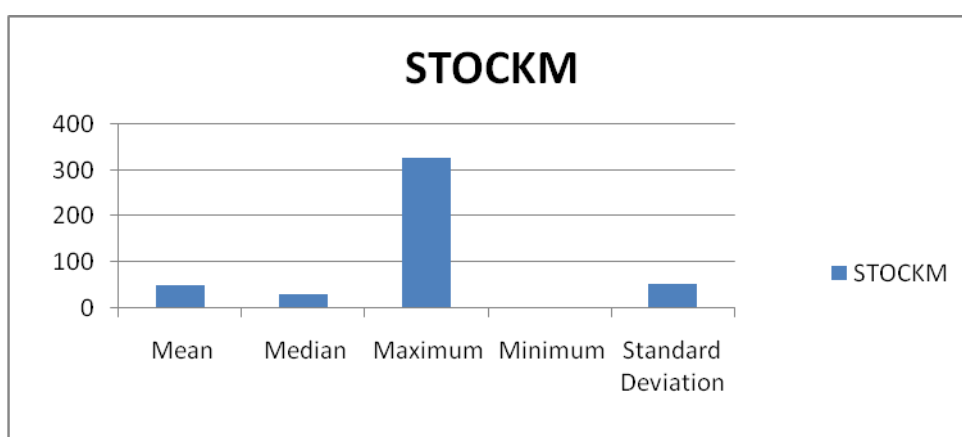
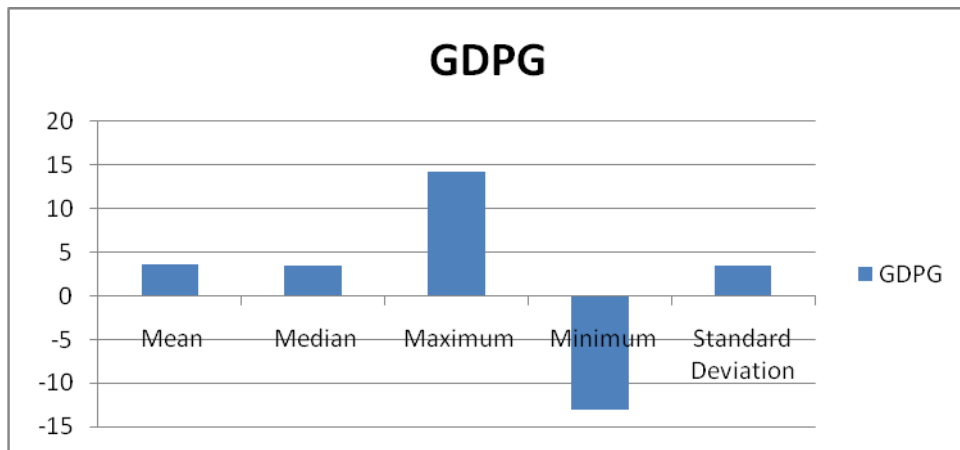


Figure 4. Descriptive statistics for GDP growth rate, in %



Appendix 3. Cross-sectional analysis for years 1990 & 2004⁴

Year 1990

Dependent Variable: CA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006722	0.026534	0.253332	0.8027
LOG(STOCKM)	0.003061	0.007165	0.427241	0.6740
LOG(TRADEOP)	0.010003	0.009726	1.028541	0.3166
GDP	0.005224	0.322468	0.016201	0.9872
BB	0.142559	0.196289	0.726272	0.4765
R-squared	0.140768	Mean dependent var		-0.010778
Adjusted R-squared	-0.040123	S.D. dependent var		0.040115
S.E. of regression	0.040912	Akaike info criterion		-3.371749
Sum squared resid	0.031802	Schwarz criterion		-3.126322
Log likelihood	45.46099	F-statistic		0.778194
Durbin-Watson stat	1.747970	Prob(F-statistic)		0.553047

Year 2004

Dependent Variable: CA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.018018	0.024238	-0.743363	0.4664
LOG(TRADEOP)	0.036662	0.011049	3.318081	0.0036
LOG(STOCKM)	-0.005542	0.015979	-0.346837	0.7325
BB	0.217623	0.338134	0.643601	0.5275
GDP	0.208247	0.405862	0.513098	0.6138
R-squared	0.547919	Mean dependent var		0.021510
Adjusted R-squared	0.452744	S.D. dependent var		0.058344
S.E. of regression	0.043161	Akaike info criterion		-3.264699
Sum squared resid	0.035395	Schwarz criterion		-3.019271
Log likelihood	44.17639	F-statistic		5.756972
Durbin-Watson stat	2.192838	Prob(F-statistic)		0.003291

⁴ Dummy variables are excluded from both regressions as the number of observations is insufficient.

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