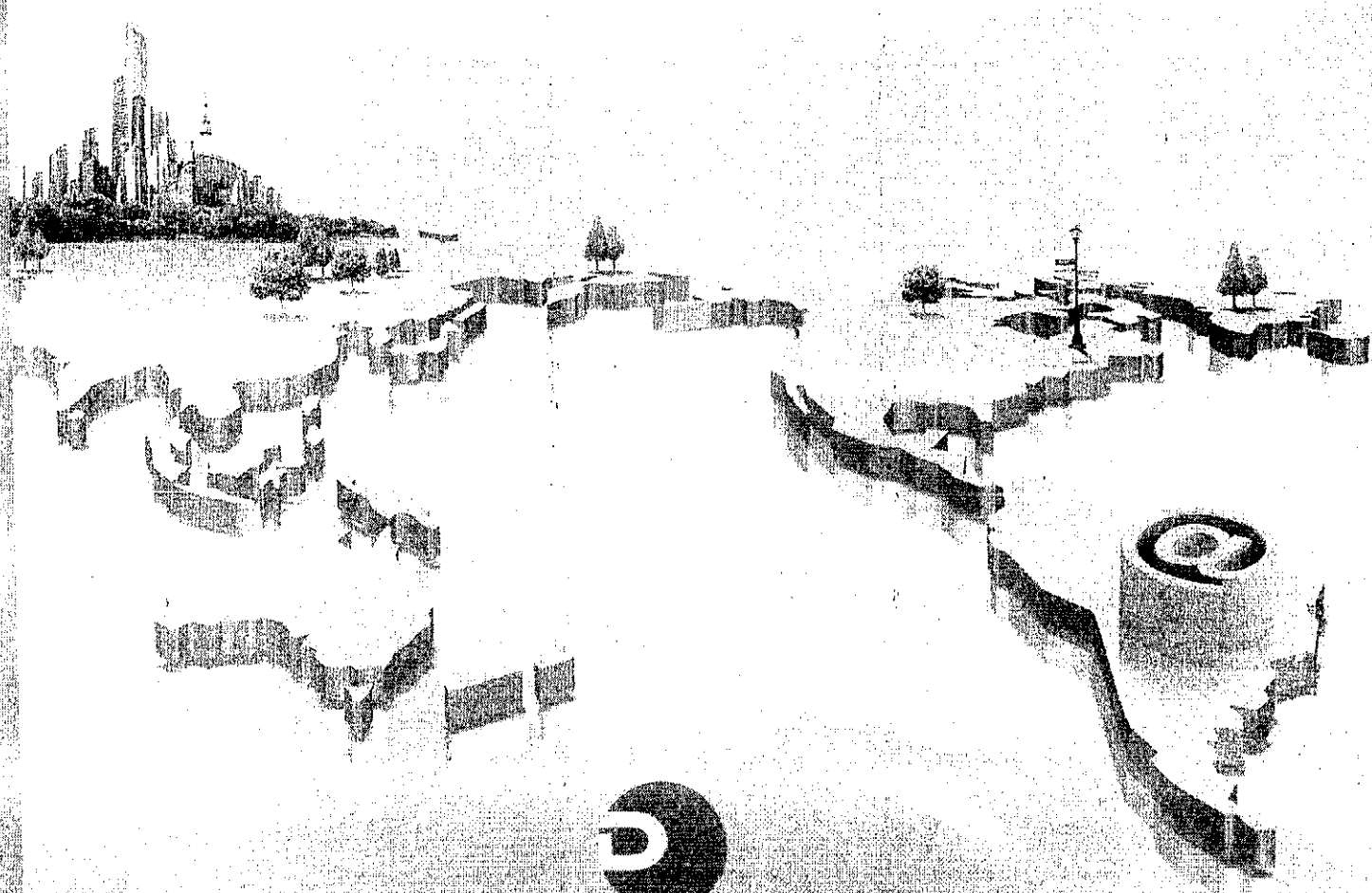


From Knowledge to Wisdom

ISSN 1537-1514 CBSN 270B0070

China-USA Business Review

Volume 10, Number 8, August 2011



David Publishing Company
www.davidpublishing.com

China-USA Business Review

Volume 10, Number 8, August 2011 (Serial Number 98)

Contents

Financial Forum

- Microfinance, Remittances, and Small Economies** 587
Sergio Castello, Chris Boike
- Analysis on Technology Implementation and Economic Growth** 600
Shoji Katagiri, Hugang Han
- Why Was Fannie Mae Taken Over?** 610
Huseyin Yilmaz

Regional Economics

- Premium Backbone Open Access: IPTV in South Korea** 621
Seung-hwa Jun, Jung Ho Kim
- The Twin Deficits Phenomenon: Evidence From Turkey** 636
Bilge Gursoy, Cengiz Ceylan
- Corporate Income Taxation and the State Budget for 2011: The Case of Portugal Telecom
Extraordinary Dividend** 643
António Martins
- Conditions of Technological Convergence in Poland During the Period of System Transition** 653
Robert W. Ciborowski
- The Growth of the Private Sector in Turkey and Its Effect on the Process of Economic
Development in the Period 1923-1963** 665
Murat Piçak, Bahar Burtan Doğan



The Twin Deficits Phenomenon: Evidence From Turkey

Bilge Gursoy, Cengiz Ceylan
Kadir Has University, Istanbul, Turkey

This paper examines the twin deficits hypothesis, i.e., a causal relationship between the budget and current account deficits for Turkey between 1989-2008 by using co-integration methodology and by estimating an error correction model. The analysis showed that there is a long-run relationship between the two deficits. Overall, the evidence shows that budget deficits significantly contribute to a deterioration of the current account. Therefore, we have concluded that the twin deficit hypothesis holds for Turkey during the 1989-2008.

Keywords: twin deficits, current account deficit, budget deficit, co-integration, Turkey

Introduction

During the early 1980s, relationship between budget and current account deficits started to draw researchers' attention. In many developing countries, including Turkey, they have made efforts in economic reforms, including domestic and external financial liberalization in 1980s. The Turkish adjustment programme implemented stabilization and liberalization policies simultaneously (to reduce the rate of inflation, to promote exports and liberalize imports, to liberalize the foreign capital movements, to reduce the role of the public sector) in this period. By the end of 1989, the process of trade and capital account liberalization was completed. After 1989, Turkey experienced large and growing fiscal and external imbalances following the capital account liberalization. The ratio of budget deficit to GDP rose steadily between 1988 and 1993 from 2.2% to 5%, and the current account deficit increased from US \$ 1.6 billion in 1988 to US \$ 6.4 billion in 1993. This trend continued for the 1990s and early 2000s. As a result, the weakness and fragility of the Turkish economy contributed to the rise of serious crises in 1994, 1998 and 2000-2001.

As far as the linkages between budget and current account deficits are concerned. There are two competing views that are both theoretical and empirical based on. According to the conventional Keynesian macroeconomics, budget deficits cause current account deficits. The Mundell-Fleming framework argues that an increase in budget deficits induces an upward pressure on interest rates that, in turn will trigger capital flows and an appreciation of exchange rates, leading to an increase in current account deficit. Hence, unidirectional causality runs from budget deficit to current account deficit. On the other hand, the Ricardian Equivalence Hypothesis (REH) expects no causal impact from budget deficit to current account deficit. REH shows that the budget deficit is a result of a tax cut. Tax cut reduces public revenues and savings. The decrease in public savings

Bilge Gursoy, Ph.D., International Trade and Logistics, Kadir Has University.
Cengiz Ceylan, Ph.D., Finance, Kadir Has University.
Correspondence concerning this article should be addressed to Bilge Gursoy, Kadir Has University, Seliimpasa/Silivri. E-mail: bgursoy@khas.edu.tr.

will be compensated for by an equal increase in private savings. The national savings will not be affected. As a result, the budget deficit has no effect on the current account deficit.

The proposed work aims to investigate the causal relationship between budget deficits and current account deficits in Turkey for the post-liberalization period. The global financial crisis of 2008-2009 contributes to the debate on Keynesian policies—demanding management through government spending—with the intervention to the markets. In particular, Keynesians advocate direct government spending and tax cuts which can cause larger budget deficits. The potential impact of these policies on Turkish economy needs to be carefully considered since the country has large budget and current account deficits. The main goal of the work is to highlight the recent situation and help policymakers for the policy implications by showing the relationship between budget deficits and current account deficits.

The paper starts by briefly reviewing the literature on twin deficits phenomenon in section 2. Section 3, provides a brief discussion of the historical background of twin deficits in the Turkish economy. In section 4, the theoretical grounds of the twin deficits phenomenon are briefly demonstrated. Section 5 includes the data, methodology and empirical findings. The last section draws the conclusions.

Literature Review

An extensive literature has examined the relationship between budget and current account deficits, named as twin deficits. Twin deficits phenomenon literature focuses on four alternative hypotheses as follows: (1) budget deficits cause current account deficits; (2) current account cause budget deficits; (3) there is a bi-directional causality between the two variables; and (4) the two deficits are not casually related. According to an open economy model developed by Roubini (1988) (that combines the two approaches where the current account is determined by the “consumption smoothing”, and the budget deficit is the result of the “tax smoothing”) the empirical tests of the model show that the fiscal deficits have an important role in the determination of the current account and the saving behaviour. Some empirical works (such as Abell, 1990; Bachman, 1992; Vamvoukas, 1999; Akbostanci & Tunc, 2001; Salvatore, 2006; Hakro, 2009) found that a worsening budget deficit stimulates an increase in external deficit. On the other hand, the results (Kearney & Monadjemi, 1990; Anorou & Ramchander, 1998; Alkswani, 2000; Onafowora & Owoye, 2006; C. H. Kim, & D. Kim, 2006; Marinheiro, 2008; Katircioglu, S. Fethi, & M. D. Fethi, 2009) show that there is a strong evidence of Granger causality running from the current account deficit to budget deficit.

Third, a bi-directional causality between the two variables is possible. In attempt to investigate bi-directional causality between twin deficits there has been report by Darrat (1988) using quarterly data for the period 1960-1984 in the United States, and he finds that there is evidence of both budget-to trade deficit and trade deficit-to-budget deficit causality. Moreover, a recent study by Islam (1998), which is in accordance with the result reported by Darrat (1988) examined the relationship between current account and budget deficits in Brazil for the period of 1973-1991.

Lastly, by contrast to Keynesian’s view (unidirectional Granger causality that runs from budget deficit to current account deficit), the Ricardian Equivalence Hypothesis argues that the budget and current account deficits are not correlated. The empirical evidence (Dewald & Ulan, 1990; Enders & Lee, 1990; Haug, 1990; Kaufmann, Scharler, & Winckler, 2002) is supportive of Ricardian Equivalence Hypothesis. Consequently, one can argue

that the results of the existing theoretical and empirical work on twin deficits differ even in case of using different econometric techniques, time series and country data.

Twin Deficits in the Turkish Economy (1980-2008)

One important characteristic of Turkish economics is the persistence of budget deficit during 1989-2008, especially at the years of post capital liberalization period. As mentioned before, after the implementation of a structural change and reform program in 1980s, the economy experienced a relatively high economic growth and stable balance of payments situation. During the accelerated growth phase of 1983-1987, the public account has improved and public sector borrowing requirement (PSBR) declined by more than three percentage points to 3.5% (annually averaged) of the gross domestic product when it is compared with the early 1980s.

As seen in Figure 1, starting in 1989, the economy entered a new phase by completing the liberalization process through financial liberalization. The dynamics of this situation can be linked to debt financing policies of government and unsuccessful disinflationary efforts. In 1987, the public sector borrowing requirement was 4.5% (per GDP) and started to increase in a steady fashion and reached the highest level of 1990s to 7.9% in 1992. In other words, budget deficit during 6 years (1987-1993) has increased approximately 2 times. Financing the budget deficits through domestic borrowing has led to increase in domestic interest rates (Balkan & Yeldan, 2002, p. 43). The private sector began to finance the public deficits through public securities particularly after 1990. During the 1990s, higher government expenditure which was generally financed with debt, raised the interest rates, made capital more expensive and reduced the private investment (crowding out effect).

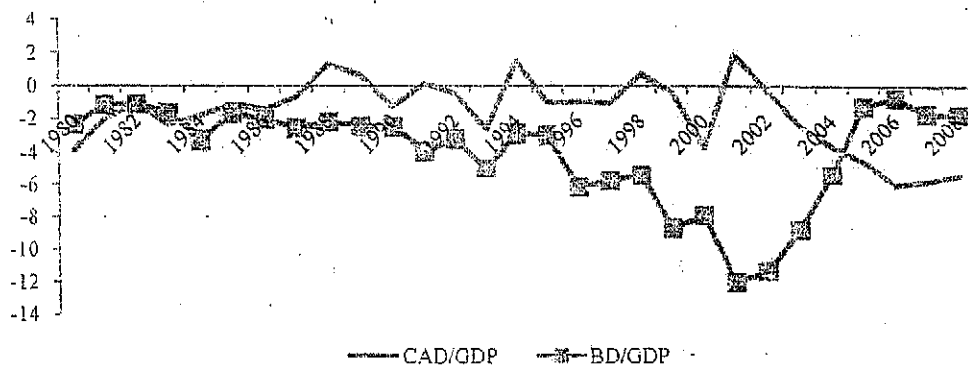


Figure 1. Turkey's current account and budget deficits as a percentage of GDP, 1980-2008.

In January 1994, Turkey's credit rating was downgraded by some major international agencies. This caused a panic in financial markets, and the Turkish Lira was devaluated, the parity was more than doubled from about 15,000 TL/\$ to 35,000 TL/\$ within a few months. Thus, the capacity of Turkey to service its growing external debt was severely impaired and Turkish economy was hit by the 1994 currency crisis. There was a correction with PSBR in 1994 and 1995 by the effect of currency crisis, but it continued to increase again and reached over 11.5% in the year 1999. These results show failure of government activity in controlling the budget deficit.

From 1999 to 2001, budget deficit and the trend of budget deficit to GDP ratio increased. After 2000/2001 crisis, budget deficit to GDP ratio had the highest record as over 12 percent for the last three decades. Thus, the policymakers implemented domestic reforms including privatization, trade liberalization, banking sector reforms

and fiscal discipline. As a result, with the transition to the "Strong Economy Program" the ratio of the budget deficit to GDP which was 11.4 % in 2002 decreased to 1.8 % at the end of the 2008.

The other characteristic of Turkish economy during 1980-2008 was the oscillatory trend in current account balance, especially during 2000-2008. The general overview of the current account deficit of Turkey can be observed in Figure 1. During 1980-1988, classical accumulation model had been adopted with common characteristics, in order to increase exports, creating domestic demand contraction resulted from wage suppression, export promotion with strong subsidy components, together with the managed floating of the exchange rate and regulated capital movements. As a result of these policies, current account deficit/GDP ratio, in which growing is slowed down, the possibility of financing is definitely improving.

Together with capital account liberalization, the Turkish economy unfortunately experienced several severe crises after 1990s. Between 1990 and 2000, the current account movements (from US\$ 2.6 billion to US\$ 9.9 billion) reflect the unsustainable character of the weak and fragile nature of the Turkish economy which contributed to the rise of serious crises in 1994, 1998, and 2000-2001. After 2002, Turkish foreign trade has increased tremendously, and the current account deficit which is high by any standards increased from \$ 626 million in 2002 to \$ 41.9 billion in 2008.

The Theory

From the national income identity:

$$Y = C + I + G + (X - M) \quad (1)$$

Here the national income, Y , equals consumption C , investment I , government G , expenditures plus the net exports $(X - M)$.

On the other hand, individuals dispose of income Y , either as consumption C , savings S , and taxes T :

$$Y = C + S + T \quad (2)$$

When we combine two equations, we obtain:

$$C + S + T = C + I + G + (X - M) \quad (3)$$

After substituting, equation (3) yields:

$$(X - M) = (T - G) + (S - I) \quad (4)$$

Equation (4) states that the trade or current account deficit, $(X - M)$, is equal to budget deficit, $(T - G)$, plus the saving investment gap, $(S - I)$. If the savings investment gap remains the same or stable, changes in policies that worsen the budget deficit will widen the trade or current account deficit, which is the traditional twin deficit relationship. The Keynesian proposition argues that there is a positive relationship between trade and budget deficits and also states the direction of causality from budget deficit to trade deficit. The strongest argument against the Keynesian proposition is the Ricardian Equivalence theorem. According to this theorem, consumer spending or capital formation is unaffected by the choice between taxes or bonds to finance government spending. Therefore, the budget deficit has no effect on the trade deficit.

Data, Methodology and Estimated Results

In this proposed work, we want to investigate whether the statistical relationship between the budget deficit and current account deficit in Turkey is unidirectional, bidirectional or the two-variables do not influence each

other. The Turkish macroeconomics variables of Current Account Deficit (CAD) as percent (%) of Gross Domestic Product (GDP) and Budget Deficit (BD) as percent (%) of Gross Domestic Product (GDP) are considered in this study. The data is obtained from the International Financial Statistics (IFS), Turkish Statistical Institute (Turkstat) and Central Bank of the Republic of Turkey database. The observations' time series cover quarterly data between 1989 Q1 and 2008 Q4 yielding 80 observations.

The nature of the twin deficits phenomenon allows for the adaption of the cointegration and error correction model analysis. There are two steps for cointegration methodology: The first one is to determine whether each of the univariate series is stationary or not; and the second one is to verify the long run relationship between the series. In this paper, we use the Augmented Dickey-Fuller (ADF) to test for stationary of the time series. Second, we tested the cointegration of the variables by using Johansen cointegration test. Third, we estimated the Vector Error Correction Model. Based on the results, one may argue the policy implications about the fiscal policy and external imbalances. If nothing else, the models help policymakers to keep an eye on macroeconomic fundamentals that have proved prescient in the past and give traders yet another number to track.

As mentioned above, initially, stationary of the data set is checked by using the Augmented Dickey-Fuller (ADF) unit root tests. Table 1 shows the results of these tests. These values are clearly less than the critical values (BD (-1.7062), CAD (-1.0753)), and therefore, the null hypothesis of a unit root cannot be rejected for each series at the significant level of 5%. From Table 1, *t*-values of the first differences prove that the hypothesis of unit root can be rejected, or to say that these two variables are difference stationary. So the variables are cointegrated of order one, $I(1)$.

Table 1

ADF Tests and ADF Tests of the First Difference

Series	ADF tests		ADF tests of the first difference	
	<i>t</i> -statistic	Critical value 5%	<i>t</i> -statistic	Critical value 5%
BD	-17.062	-29.006	-76.274	-29.006
CAD	-10.753	-29.023	-65.381	-29.023

Having determined that the variables are first-differenced stationary ($I(1)$), we used tests suggested by Johansen (1988, 1991) to examine whether the variables in question have common trends. In addition, to the determinations of the set of variables in the VAR, it is important to determine the appropriate lag lengths for each variable in each equation. For this study, a lag length of one is appropriate on the basis of AIC and the same lag length is used for all equations in the VAR model.

The results of trace and maximum value tests appear in Table 2. These tests show that we can easily reject the null hypothesis of no cointegrating vectors between budget deficit and current account deficit in Turkey. However, Johansen cointegration method only confirms the existence of a long run equilibrium relationship between two variables and does not say which of the one variable cause the other.

The estimates of the error correction model are reported in Table 3. As one can see, the error correction term (ECT(-1)) carries its expected negative sign (-0.4409) and found to be statistically significant. This suggests that any deviation from the long-run equilibrium will be corrected. On the other hand, as seen from Table 3, the values in the first model of error correction, which shows the short run effects of budget deficit $D(BD(-1))$ on current account

deficit D(CAD), indicate that increasing budget deficit will worsen the current account balance or vice versa. These results provide support for the conventional position and they refute Ricardian Equivalence Hypothesis.

Table 2

Trace and Maximum Value Tests

Unrestricted cointegration rank test (trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigen value	Statistic	Critical value	Prob.**
None	0.305273	39.22825	25.87211	0.0006 ¹
At most 1	0.129503	10.81787	12.51798	0.0946
Unrestricted cointegration rank test (maximum eigen value)				
Hypothesized		Max-eigen	0.05	
No. of CE(s)	Eigen value	Statistic	Critical value	Prob.**
None	0.305273	28.41038	19.38704	0.0019 ¹
At most 1	0.129503	10.81787	12.51798	0.0946

Notes: ¹ shows the statistical significance at the 1% level.

Table 3

Estimates of the Vector Error Correction Model

Error correction	D(CAD)	D(BD)
ECT(-1)	-0.440929 (0.11425) [-3.85922]	-0.744032 (0.16406) [-4.53519]
D(CAD(-1))	-0.007158 (0.12926) [-0.05538]	0.012337 (0.18561) [0.06647]
D(BD(-1))	0.152270 (0.06701) [2.27234]	-0.231838 (0.09622) [-2.40945]
C	-0.000452 (0.00310) [-0.14584]	-0.000644 (0.00445) [-0.14474]

Summary and Concluding Remarks

The large public sector budget deficits and the relatively high current account deficits in Turkey during the last three decades have sparked debate on their consequences for the Turkish economy. The main question of the paper is to find out the kind of relationship exists between budget and current account deficits. To answer this question, this article investigates the causal relationship between these two variables over the period 1989-2008.

This paper explores the relationship between budget and current account deficits in Turkey, also known as twin deficits, using quarterly time series data covering the period 1989-2008. To reach our aim, we used some econometric tests to analyze a long run equilibrium relationship between the two deficits. Our empirical results show that such secular relationship exists and affirms the direction of causality from budget deficit to current

account deficit.

In terms of our long-run and short-run analysis, all we could say is that the Ricardian Equivalence Hypothesis is not valid for Turkey both in the long-run and short-run during the study period. As a result, any deterioration in the budget deficit has a negative impact on the current account balance. Policymakers should therefore be particularly attentive to negative developments in the budget balance.

Finally, our study focuses on Turkey and hence the results may not be generalized to the other developing countries. Further examination using data from other countries may be required to understand the twin deficit phenomena in both developed and developing countries particularly the East European Economies.

References

- Abell, J. D. (1990). Twin deficits during the 1980s: An empirical investigation. *Journal of Macroeconomics*, 12(1), 81-96.
- Akbostanci, E., & Tunc, G. I. (2001). Turkish twin deficits: An error correction model of trade balance. ERC Working papers in economics, 01/06.
- Alkswani, M. A. (2000). Twin deficits phenomenon in petroleum economy: evidence from Saudi Arabia. Presented in *Seventh Annual Conference, Economic Research Forum*, October 26-29, Amman, Jordan.
- Anoruo, E., & Ramchander, S. (1998). Current account and fiscal deficits: Evidence from five developing economies of Asia. *Journal of Asian Economics*, 9, 487-501.
- Bachman, D. D. (1992). Why is the U.S. current account deficit so large? Evidence from vector auto regressions. *Southern Economic Journal*, 59, 232-240.
- Balkan, E., & Yeldan, E. (2002). *Peripheral development under financial liberalization: The Turkish experience. The ravages of neo-liberalism: Economy, society and gender in Turkey*. New York: Nova Science Publishers.
- Darrat, A. F. (1988). Have large budget deficits caused rising trade deficits. *Southern Economic Journal*, 54(4), 879-887.
- Dewald, W. G., & Ulan, M. (1990). The twin deficits illusion. *Cato Journal*, 10, 689-707.
- Enders, W., & Lee, B. S. (1990). Current account and budget deficits: Twin deficits or distant cousins. *The Review of Economics and Statistics*, 72(3), 373-381.
- Hakro, A. N. (2009). Twin deficits causality link-evidence from Pakistan. *International Research Journal of Finance and Economics*, 24, 54-70.
- Haug, A. A. (1990). Ricardian equivalence, rational expectations, and the permanent income hypothesis. *Journal of Money, Credit and Banking*, 22(3), 305-326.
- Islam, M. F. (1998). Brazil's twin deficits: An empirical examination. *Atlantic Economic Journal*, 26, 121-128.
- Johansen, S. (1988). Statistical Analysis of cointegration vectors. *Journal of Economic Dynamics and Control*, 12, 231-254.
- Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica*, 59, 1551-1580.
- Katircioglu, S. T., Fethi, S., & Fethi, M. D. (2009). Twin deficits phenomenon in small islands: an empirical investigation by panel data analysis. *Applied Economics Letters*, 16(15), 1569-1573.
- Kaufmann, S., Scharler, J., & Winckler, G. (2002). The Austrian current account deficit: Driven by twin deficits or by intertemporal expenditure allocation? *Empirical Economics*, 27, 529-542.
- Kearney, C., & Monadjemi, M. (1990). Fiscal policy and current account performance: International evidence on the twin deficits. *Journal of Macroeconomics*, 12(2), 197-219.
- Kim, C. H., & Kim, D. (2006). Does Korea have twin deficits. *Applied Economics Letters*, 13(10), 675-680.
- Marinheiro, C. F. (2008). Ricardian equivalence, twin deficits, and the Feldstein-Horioka puzzle in Egypt. *Journal of Policy Modeling*, 30, 1041-1056.
- Onafowara, O. A., & Owaye, O. (2006). An empirical investigation of budget and trade deficits: The case of Nigeria. *The Journal of Developing Areas*, 39(2), 153-174.
- Roubini, N. (1988). Current account and budget deficits in an intertemporal model of consumption and taxation smoothing. A solution to the "Feldstein-Horioka Puzzle"? NBER Working paper No. 2773, November.
- Saivatore, D. (2006). Twin deficits in the G-7 countries and global structural imbalances. *Journal of Policy Modeling*, 28, 701-712.
- Vamvoukas, G. A. (1999). The twin deficits phenomenon: Evidence from Greece. *Applied Economics*, 31(9), 1093-1100.



China-USA Business Review
Volume 10, Number 8, August 2011

David Publishing Company
1840 Industrial Drive, Suite 160, Libertyville, IL 60048
Tel: 1-847-281-9826; Fax: 1-847-281-9855
<http://www.davidpublishing.com>
economists@davidpublishing.com

