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The dynamic linkages of fiscal and current account deficits: New evidence from five highly indebted European countries accounting for regime shifts and asymmetries

Emmanouil Trachanas, Constantinos Katrakilidis *

Department of Economics, Aristotle University of Thessaloniki, Thessaloniki, 54124, Greece

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ABSTRACT

This article provides new empirical evidence on the long-term relationship between the fiscal and current account imbalances, of five European economies under financial market pressure and insolvency; Portugal, Ireland, Italy, Greece and Spain. We attempt to re-evaluate the dynamic linkages between the twin-deficits allowing for the presence of structural breaks and asymmetries. The evidence is in favor of the "twin deficits hypothesis". More insight is further provided through the magnitude and significance of the asymmetric linkages between the twin deficits in the long-run time horizon. Our findings indicate that fiscal deficit decreases have a greater impact on the current account deficit rather than the opposite.

1. Introduction

Quite recently, several economies worldwide along with certain European ones, have experienced a remarkable deterioration in their fiscal and current account imbalances. This fact, along with the current global crisis, has contributed much into rekindling the issue of possible causal linkages between the fiscal and current account deficits; widely known as "the twin deficits hypothesis". Excessive deficits may result in insolvency, reflecting inability of the government to stabilize its public debt ratio and to repay its debts which is, to some degree, the case for several European economies. The latter being characterized as heavily indebted are Portugal, Ireland, Italy, Greece and Spain.

According to the "twin deficits hypothesis", an increase (decrease) in the fiscal deficit causes an increase (decrease) respectively in the current account deficit. Such a relation could be shortly explained through the following mechanism: an increase in the fiscal deficit of an economy leads to an increase in the aggregate demand and the domestic interest rates. Conditional on the degree of openness, higher interest rates raise the economy's exchange rate, leading to more expensive exports and cheaper imports, ending up with deterioration in the current account deficit.

The aforementioned issue has been a subject of controversy among economists through the last decades. Nevertheless, no consensus exists until today as to whether the fiscal deficit causes the current account deficit or vice versa. Darrat (1988), Abell (1990), Bahmani-Oskooee (1992, 1995), Normandin (1999), Vamvoukas (1999), Salvatore (2006) and many other economists argue in favor of the Keynesian rationale, that the two deficits are closely linked and that the fiscal deficit causally affects the current account deficit. Another view, known as "the Ricardian Equivalence", supports that the two deficits are not causally connected (Enders and Lee, 1990; Kim, 1995; Miller and Russek, 1989). Furthermore, Kim and Roubini (2008) suggest that a "twin divergence" seems to be more probable than a "twin deficit", when the endogenous movements of the fiscal and the current account deficit are taken into consideration.

In an interesting paper, Bagnai (2006) stated that the most recent empirical analyses on the linkages between the two deficits agree broadly on the following; firstly, the majority of macroeconomic models support that there is a causal relationship directed from the fiscal to the current account deficit; secondly, the relationship between the two deficits may differ in the short- and in the long-run time horizon depending upon the long-run properties of the deficit series involved (Kraay and Ventura, 2002; Normandin, 1999); and thirdly, the long-run relationship appears rather weak and/or is affected by the presence of structural breaks. The importance of structural breaks has been recognized by many studies, though only few of them have seriously considered the issue of structural breaks through

* Corresponding author. Tel.: +30 2310996467; fax: +30 2310996456.
E-mail addresses: etrachan@econ.auth.gr (E. Trachanas), katrak@econ.auth.gr (C. Katrakilidis).

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formal tests (Bagnai, 2006; Grier and Ye, 2009; Hatemi-J and Shukur, 2002; Holmes, 2011). As Gregory and Hansen (1996a, 1996b) show, ignoring the presence of a structural break in the long-run relation might result in the acceptance of the null hypothesis of no cointegration between the examined variables, even though a long-run relation may actually exist.

In addition, the majority of the research efforts to model the "twin deficits hypothesis" have been conducted in a linear framework. Interestingly, many macroeconomic variables incorporate nonlinear properties, especially in the area of business cycles (Falk, 1986; Neftci, 1984) and hence, since deficits are usually driven by economic activity they should also be expected to exhibit nonlinearities. This fact possibly implies that linear models might not be efficient to explore the relationship between fiscal and current account imbalances providing misleading evidence. More specifically, in the presence of asymmetries, the response of the current account deficit to positive shocks in the fiscal balance might differ from the response to negative shocks.

The aim of this article is to provide more insights on the dynamic linkages between the twin deficits by targeting upon five European countries that are faced with fiscal and current account insolvencies; Portugal, Ireland, Italy, Greece and Spain. We allow for possible sources of nonlinearities such as the presence of structural breaks in the long-run relationship between the fiscal and current account imbalances, as well as the potential asymmetric linkages between the two deficits towards the long-run equilibrium. To this direction, we employ the Gregory and Hansen (1996a, 1996b) residual-based cointegration methodology, which accounts for one possible break, endogenously determined, and the asymmetric cointegration methodology suggested by Schorderet (2003). The asymmetric cointegration methodology employs the analysis of multivariate combinations between positive and negative components of the two deficits. To our knowledge, this approach enriches the relevant international empirical literature on the twin deficits, particularly for the examined group of countries.

The rest of the article is structured as follows: the second section presents the twin deficit debate accompanied by a brief review of the relevant empirical literature; the third section focuses upon the asymmetric cointegration methodology applied, while the fourth section reports the empirical findings. Finally, the fifth section provides a short summary and conclusions.

2. The twin-deficits debate and a brief review of the empirical literature

The causal link between fiscal deficit and current account deficit can be exemplified via looking at Eq. (1), which relates the current account balance $(X-M+R)$ to the fiscal balance $(T-G)$ through the difference between private saving and investment, providing the framework to investigate the link between the two deficits.

$$(X–M+R)=(S–I)+(T–G) \tag{1}$$

where: X stands for exports of goods and services, M stands for imports of goods and services, R for net transfers abroad, S for private saving, I for private investment, T for direct taxes on households and firms by the government and finally, G stands for government expenditure.

Following Eq. (1), a rise in fiscal deficit, with $(S-I)$ remaining constant, affects the current account deficit positively. The mechanism is that fiscal deficits increase domestic interest rates, whereas higher interest rates attract foreign capital. In such a case, the domestic currency is appreciated, leading to an increase in the current account deficit. The resulting deterioration is strongly relevant to the economy's degree of openness.

Another view of the "twin-deficits hypothesis" grounds on the argument that in order for it to hold, saving and investment should not be linked, implying that increases in private saving may not be sufficient to offset the effects of increased fiscal deficits (Afonso and Rault, 2009).

In contrast, the well known "Ricardian Equivalence" argues that, current higher fiscal deficits are perceived from consumers as postponed higher future taxes and therefore, when the government reduces taxes (or increases spending) ceteris paribus, consumers increase saving to ease the payment of the expected higher future taxes. In this case, both consumption and investment remain unaffected and the current account balance remains stable (Barro, 1989).

Kim and Roubini (2008) on the other hand, stress the issue of endogenous movements of the fiscal and the current account deficit and suggest that a "twin divergence" is also probable; the current account deficit can improve when the fiscal deficit worsens. These findings are attributed to two factors; first, a partial Ricardian movement of private saving (private saving increases) and second, an investment crowding out effect (investment declines) caused by an increase in the real interest rate. Moreover, when the two balances are affected by an output and/or a productivity shock, "twin divergence" also seems to be more likely. A similar, though weaker, finding applies when they consider "exogenous" fiscal shocks.

The "twin deficits hypothesis" has long been a subject of extensive study in the field of empirical macroeconomics. The applied methodologies vary from Ordinary Least Squares (OLS) regressions to VAR estimations and cointegration analysis. Earlier studies usually applied OLS regressions to cross-country data (Bernheim, 1988) with their majority reporting a significant positive relationship between the two deficits. Some studies (Andersen, 1990) did not manage to confirm the existence of such a causal relationship. From the 90s until now, many researchers applied VAR models to examine the potential relationship between the two deficits (Abell, 1990; Bachman, 1992; Enders and Lee, 1990; Kim and Roubini, 2008; Normandin, 1999; Rosensweig and Tallman, 1993). These studies have provided rather mixed results, though a great portion of them confirmed the "twin-deficits hypothesis" for several countries. However, the most widely used method to examine the twin-deficits relationship is that of cointegration analysis (Bachman, 1992; Dibooglu, 1997; Leachman and Francis, 2002; Miller and Russek, 1989). Surprisingly though, the evidence has not been entirely in favor of a positive relationship between the two deficits.

Over the last years several researchers have used even more advanced cointegration techniques, being able to account for possible structural breaks and thus to identify more accurately the existence of a long-run relationship between the two deficits (Bagnai, 2006; Grier and Ye, 2009). A step further, Holmes (2011) examined the relationship in question by means of the threshold cointegration approach, allowing for different regimes in the short-run dynamics. He concluded in favor of a positive causal long-run relationship.

Summing up, the literature on the "twin deficits hypothesis" has employed a wide range of different econometric techniques, reporting a variety of different findings. However, in the vast majority of this literature there is an apparent omission of two factors that might be crucial when examining the dynamic linkages between the two deficits; the presence of structural breaks, as well as that of asymmetries. This might be a serious reason for the mixed, in general, results on the twin-deficits relationship.

3. The asymmetric cointegration methodology

Granger and Yoon (2002) introduced the term "hidden cointegration" to identify the dynamics between data components. Two time series have hidden cointegration if their positive and negative components are cointegrated. They also showed that standard linear (symmetric) cointegration is a special case of hidden cointegration and in turn,