

Effects of monetary policy on the twin deficits

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Abstract

This study uses a three-equation dynamic linear system to show the positive relationship between federal budget deficits and the 5-year Treasury bond rate and between the twin deficits in the U.S. during 1975:01 through 2004:12. An optimal efficient rule equation suggests that a one percentage point increase in bond rate explains a 22% budget deficit variations. A one index point change in nominal exchange rate correlates to a 78% variation in budget deficits. When real exchange rate is adopted in the system, the corresponding percentages become 14 and 86, respectively, showing the fading influence of T-bond rate and the increasing strength of exchange rate.

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1. Introduction

One issue stemming from simultaneous occurrences of federal budget and trade deficits in the 1980s and early 1990s is whether the monetary policy is effective for twin deficits. The four relationships in this issue are: between budget deficits and market interest rates, between trade deficits and exchange rates, between market interest rates and exchange rates, and between the central bank and twin deficits. Federal budget deficits may be financed by tax collections or sales of Treasury bonds (Auerbach, 2003). If the latter is used, then yields on bonds are directly related to budget deficits. The Federal Reserve monetary policy in changing the federal funds rate leads to variations in market interest rates, thus affecting government bond rates. Because evidence sug-

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gests that both a positive relationship exists between budget deficits and interest rates (Cebula & Koch, 1989; Laubach, 2003), and in the opposite direction, the result is inconclusive (Evans, 1985; Nelson, 2004). Persistent trade deficits since 1982 were related to exchange rate or the strength of the dollar (Board of Governors of the Federal Reserve System, 2004). Monetary authority does not have direct control over exchange rates but may be able to influence it through the market (Goodfriend, 2002). The relationship between market interest and exchange rates is considered to be positive (Ball, 1999). The twin deficits did not always occur: a case of twin divergence is the budget deficit reversal during the second term of the Clinton administration (Kim & Roubini, 2004). The Federal Reserve Board did not respond to such reversal with frequent changes to the federal funds rate between 1997:04 and 1998:09 but with increases in money stock. Moreover, should there be a long run cointegration between budget deficits and trade deficits (Murthy & Phillips, 1996), then interest rate policy might be an effective monetary policy tool in influencing Treasury security yields and international capital inflows into the country. Notably the Federal Open Market Committee extracts information about the state of the economy from the current yield curve of Treasury securities (Piazzesi, 2005). However, there lack empirical analyses dealing with all four relationships of this issue. A better understanding of the effects of the monetary policy on twin deficits through a dynamic approach will allow the federal government to manage deficit financing more efficiently and will help the trade industry and international capital market better utilize interest rate information. The purpose of this paper is to examine the impact of bond yield change on budget deficits and on exchange rates and thus on trade deficits in this country from 1975:01 to 2004:12. This paper intends to add to the current understanding of calibration in empirical dynamic analysis of the effects of twin deficits (Prescott, 1986) and will enhance the quantitative side of macroeconomic as well as international financial economic literature. Additionally, it will serve intermediately toward a dynamic stochastic general equilibrium maximum likelihood estimation (DSGE-MLE) of macroeconomic analysis on twin deficit or divergence.

This paper is organized as follows: Section 2 is a brief discussion on related literature; Section 3 describes the model followed by data; Section 4 presents the results and concludes.

2. Literature review

Feldstein (1983) discusses the close relationship between the monetary and the fiscal authorities. He points out that fiscal structure affects the costs and benefits of the monetary policy exemplified by the close link between the tax system and inflation. The Federal Reserve policy issues should be based on the fiscal framework in which they worked. His illustration of the steady-state of the economy does not emphasize interest rate. Evans (1985) examines the relationship between budget deficits and interest rates in three periods of U.S. history and concludes that there is no positive association between the two. His study is based on a reduced form static linear regression equation. However, the limitation of the static analysis of early 1980s has been recognized, and many macroeconomic analyses are based on dynamic approaches wherever feasible. Among the numerous studies on twin deficits appearing in the late 1980s and 1990s, Tallman and Rosenweig (1991) find no causal relationship between the two. Cebula and Koch (1989, 1994) and Brazelton (1994) agree that the federal budget deficits have significant positive impact on long run interest rates. Murthy and Phillips (1996) examine the cointegration between budget deficits and capital inflows time series by means of the Johansen and Juselius procedure and affirm the existence of a long run relation. Mohammadi (2004) regresses current account balance on several variables including government budget surplus, real exchange rate, money stock growth, real income growth, bond or tax-financed government spending. He finds

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