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Foreign capital inflows to the USA and mortgage interest rates

Tilahun Ayanou[1]

Kaplan University, Department of Economics and Finance, Sacramento, California

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ABSTRACT

This study explores the impacts of foreign capital inflows on the USA mortgage interest rates. I find evidence that foreign capital flows are significantly and negatively related to 30-year mortgage interest rates. The evidence on the extent of the responsiveness of the interest rates to the foreign capital inflows depends on the type and magnitude of the capital inflows. Official capital flows to the Treasury and agency bonds do appear to have a significant influence on the mortgage interest rates in the VAR model specifications. Private capital inflows to the US agency bonds have significant impact on the long term mortgage rates. Private capital inflows to agency bonds do not significantly and consistently affect mortgage interest rates and Treasury yields. The relatively weaker importance of the private inflows in influencing the rates may be due to its smaller size compared with the official inflows. The results are robust for alternative model specifications.

1. Introduction

There has been large surge of foreign capital inflows to the U.S., and the net foreign holdings of U.S. financial assets have become significant in the U.S. Treasury notes and bonds. Foreign investors also hold an increasing share of securities of the U.S. agencies and government-sponsored enterprises (GSEs). With the growth in the level of foreign capital flows to the U.S. government financial assets, there has been a growing concern, regarding the impacts of the growing foreign ownership of US assets, mainly by foreign governmental institutions. The discussions of the impacts of international capital mobility and financial crisis have attracted attention from both researchers and policy makers.

The debates on capital inflows take different forms. The first concern is related to sustainability of foreign capital inflows financing growing US deficits (Summers, 2000). The second concern is in line with the adverse impacts of dependence on foreign capital since there is risk of sudden withdrawal or liquidation of foreign investments. The concerns heightened during subprime mortgage crisis since capital inflows bust tends to follow economic downturns (financial crisis) as evidenced during the late 1990 s and early 2000 s financial crises in the emerging market economies.

The third related concern on foreign capital inflows asserts that high degree of capital inflows adversely affects the independence of domestic monetary and fiscal policies. The actions of foreign investors could complicate U.S. domestic economic policymaking since sudden withdrawal actions by foreign investors from investing in U.S. financial assets may have ramifications on domestic economic policymaking and its effectiveness. The core focus of policy-impact debate is on the effects of foreign capital inflows to the U.S.A., particularly on the foreign holdings impact on reducing 10-year Treasury yield rate.

The concern has also received attention from the US Congress, as the securities backed by subprime mortgages increased volatility in financial markets, which might in turn adversely impact confidence of foreign investment on US securities (Congressional Research Service (CRS) Report, 2008). The report clearly reveals that there has been increasing concern regarding the sustainability of these foreign capital inflows, particularly from China, in the wake of the financial crisis and the depreciating dollar.

The CRS Report (2008) indicates that foreign capital inflows help to maintain lower U.S. interest rates and to finance budget deficits at a lower rate. Thus, given the mix of economic policies, the loss of foreign capital inflows may affect US interest rates, domestic investment and rate of growth of the US economy. The CRS report also suggests that the loss of capital inflows would push the Federal Reserve to raise interest rates to attract more capital inflows. Accordingly, increased capital inflows increase prices of Treasury securities and hence lower interest rates since the price

E-mail address: tayanou@kaplan.edu

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of Treasury securities is inversely related to interest rates. A decrease in foreign capital inflows would also reduce the domestic availability of capital and place upward pressure on credit and financial assets as interest rates would rise to equate the demand and supply of credit. A reduction in the inflow of foreign investment would tend to push down the prices of stocks and bonds. This in turn would push up interest rates since borrowers would be competing for a smaller pool of funds.

Although there are a number of theoretically intuitive debates in relation to foreign capital flows and their impacts on U.S. economic volatility, the empirical research foundation supporting the theoretical arguments are limited. Empirical studies supporting the intuitive explanations of the effects of huge foreign ownership of U.S. financial assets on the U.S. interest rates, investment and other economic fundamentals are hardly carried out. Therefore, it is important to investigate the concerns about financial inflows with empirical data on the foreigners' net purchases of the U.S. financial assets and other relevant variables in order to understand their relationship and in order to avoid or minimize adverse impacts of foreign capital inflows decline or withdrawal on the US economy.

Using empirical data, this study examines the dynamic effects of net foreign holdings of U.S. long-term Treasury and agency securities on the 10-year Treasury yield and 30-year conventional mortgage interest rate. To this end, a multivariate vector autoregression (VAR) model is used to examine the dynamic interactions between them, as the main tool of analysis to investigate the impacts of the foreign capital inflows on the long term mortgage interest rates. Based on the VAR model, generalized impulse response functions and generalized variance decompositions are employed to evaluate the responses of mortgage interest rates and Treasury yields to the changes in net foreign ownership of U.S. Treasuries and agency bonds. The responses of each variable to innovations to net foreign purchases (flows) and the relative importance of each foreign capital inflow factor will also be investigated.

This study contributes to the empirical research in the area that tries to quantify the dynamic impact of net foreign holdings of long-term U.S. Treasuries and agency bonds on long-term and short-term mortgage interest rates and Treasury yield.

First, unlike earlier studies, this study evaluates the empirical dynamic effects of capital inflows in order to evaluate impacts of net total official holdings of U.S. Treasury and agency bonds on the 10-year Treasury yield, and 30-year mortgage interest rate. Second, this paper attempts to separate the impacts of foreign purchases of Treasury and agency bonds. It also separates the effects of private and official inflows. Third, the dynamic relationship between foreign capital flows and U.S. interest rates is estimated using vector autoregression (VAR) techniques. Unlike static regression techniques, the dynamic model estimates the short run and long-run relationships. We estimate the generalized impulse response functions and forecast variance decompositions to explore the contribution of each foreign capital inflow variable. To the best of my knowledge, this study is the first one to investigate the effects of capital flows into US Treasury and agency bonds on U.S. Treasury yield and mortgage interest rate in the context of dynamic VAR model framework. This investigation makes intuitive sense in that foreigners hold a significant amount of the total outstanding long-term Treasury securities debt, and hence it is possible that their demands have an upward pressure on Treasury bond prices, which in turn depresses Treasury yields.

The fundamental economic question that this paper tries to address is whether foreign accumulation of U.S. long term Treasury and agency securities can be considered an independent risk factor that drives time-variation in Treasury yields and mortgage interest rates. Thus, there are two inter-related hypotheses to test. The first hypothesis in this study investigates whether exogenous shocks to foreign capital flows to the US affect long-term Treasury yields and mortgage interest rates. The second hypothesis of interest is whether Treasury yield (price) and mortgage interest rates predict subsequent foreign capital inflows. In other words, the study answers two questions. First, do foreign capital inflows predict U.S. Treasury yield and mortgage interest rates? Second, do the interest rates and other fundamentals predict foreign capital flows?

The empirical results are summarized as follows. The VAR model results confirm negative, statistically significant and persistent effect of net foreign holdings shocks on the long-term Treasury yield and mortgage interest rate. An exogenous increase in the level of net purchases of Treasuries has a negative effect on yields and on long-term mortgage interest rate. We find evidence that net foreign capital flows to Treasuries are significantly and negatively related to the 10-year Treasury yield and 30-year mortgage interest rate.

The evidence on the extent of the responsiveness of the interest rates to the net foreign capital flows depend on the type and magnitude of the flows. Private capital inflows to agency bonds do not significantly and consistently affect mortgage interest rates and yields in any of the VAR model specifications. Simultaneously, official and private capital flows to the Treasury bonds and notes do appear to have significant influence on the mortgage interest rates and Treasury yields. Official capital flows to the US agency bonds have statistically significant impact on the long-term mortgage rates. The relatively weaker importance of the private inflows in influencing the rates may be due to its smaller size compared with the official inflows. The results are robust for alternative specifications. The empirical evidence does not suggest that the relative roles of the capital inflows have changed considerably during the recent financial crisis period. There are still steadily increasing capital flows into US Treasury bonds.

The remaining structure of this study is as follows. Section 2 discusses relevant literature in the area. Section 3 presents the methodology. Section 4 contains the empirical analysis and robustness checks using alternative models. The conclusions are presented in section 5.

2. Literature review

Understanding the dynamic nature of capital flows to developing economies has become one of central themes in economics and financial researches. But much less research is done and hence much less is known about the impacts of foreign capital inflows on the U.S. economy. Until recently, there is a view that foreign capital flows could not significantly affect economic and policy fundamentals in the United States (Bardhan and Jaffee, 2007).

Francis Warnock and Warnock (2006) find that international capital flows significantly affect US Treasury rates. It is argued that large foreign purchases of U.S. government Treasury securities have significantly contributed to the low levels of U.S. interest rates observed since late 1990 s. They show that international capital flows have an economically important and statistically significant effect on the Ten-year U.S. Treasury rates, and conclude that capital inflows may partly explain movements in long-term US Treasury yields. Accordingly, foreign governments' official accumulations of US Treasury and Agency securities have reduced US 10-year Treasury rates by about 90 basis points (bps). They also estimated that US 10-year Treasury rates would rise by 90 bps (0.9%) if foreign government agencies were to stop accumulating US Treasuries. Similarly, it would rise by another 90 bps if they were to sell their previously accumulated US Treasury and Agency securities. The implication of their argument is that if foreigner investors decrease or stop buying US debt, US interest rate will be much higher than what it is now.

Bardhan and Jaffee (2007) research on the impact of capital inflows found that foreign investors purchase of US securities help