



International capital mobility: An alternative test based on intertemporal current account models

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ABSTRACT

This paper examines international capital mobility by estimating intertemporal current account models for nine major industrialized countries. To account for the large fluctuations of oil prices (the terms-of-trade) and their effects on the current account, an intertemporal current account model incorporating such effects is devised. The model estimation reveals significant terms-of-trade effects on the current account and, moreover, does not exhibit any “excess capital mobility” found in the previous literature. These results indicate that to achieve a more accurate measure of international capital mobility, a proper account of the terms-of-trade effect is essential.

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1. Introduction

During the past two decades or so, the issue of whether there exists adequate capital mobility between world economies has drawn a great deal of attention in the literature. Two strands of empirical literature have emerged so far. The first strand of literature, as represented by the seminar work of Feldstein and Horioka (1980), used saving–investment correlation to measure the degree of international capital mobility. These studies include Obstfeld (1986, 1989), Dooley, Frankel, and Mathieson (1987), Bayoumi (1990), Feldstein & Bacchetta (1991), Tesar (1991), Kollias, Mylonidis, and Paleologou (2008) and Georgopoulos and Hejazi (2009), among many others. The empirical approach was based on the argument that the degree of international capital mobility is negatively related to the correlation between domestic saving and domestic investment. According to the argument, when capital is perfectly mobile across economies, investment change should be independent of saving change and, as a result, their correlation should be low. On the other hand, when capital is immobile across economies, investment change has to be accommodated by an equal sized saving change. As a result, investment and saving are perfectly correlated. Many empirical works in this strand of literature have found high and positive saving–investment correlations in many advanced economies, e.g., Feldstein & Horioka (1980) and Feldstein & Bacchetta (1991), and accordingly conclude that the degree of international capital mobility has been generally low.

The other strand of literature, as exemplified by the works of Ghosh (1995) and Shibata and Shintani (1998), employed intertemporal current account models as a benchmark to investigate the degree of international capital mobility. The literature argues that economic theories do not necessarily imply any close relation between saving–investment correlation and international capital mobility. For example, Obstfeld (1986) and Razin (1995) have shown that under a typical intertemporal current account model a variety of shocks tend to induce a significant saving–investment correlation even under perfect capital mobility. In view of the shortcoming of saving–investment tests, it has been suggested that tests based on economic theories,

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especially those utilizing intertemporal optimizing framework, would produce more informative results as to the degree of international capital mobility. The empirical works in this strand of literature have generally found a higher degree of international capital mobility than those obtained in saving–investment tests. One particular finding in earlier research is that the actual current account is often far more volatile than the predicted current account, e.g., Ghosh (1995), Otto (1992), and Sheffrin and Woo (1990). The finding has been interpreted as evidence of “too much” capital mobility, e.g., Ghosh (1995).

In this paper, we follow Ghosh (1995) and Shibata and Shintani (1998) by employing intertemporal current account model to study the issue of international capital mobility. However, the paper differs from earlier research in one important aspect. To measure international capital mobility, we employ an intertemporal current account model specifically taking into account the effect of the terms-of-trade on the current account.¹ With large fluctuations in world oil prices (hence the terms-of-trade) for many economies since the 1970s, the effect of the terms-of-trade on the current account has been becoming more important. As a result, the use of simple intertemporal current account models that neglect the terms-of-trade effect may produce misleading results regarding international capital mobility. Specifically, since a simple model cannot capture the terms-of-trade induced current account fluctuations, the model would erroneously attribute such fluctuations to other factors of current account determination – the mobility of international capital in particular. In this paper, we argue that earlier finding of “excessive mobility” of international capital in the literature might be largely due to the failure of the models to capture the terms-of-trade effects on current account fluctuations.

The research strategy of this paper is as the following. To evaluate the international capital mobility, we construct a benchmark intertemporal current account model with special emphasis on the effects of the terms-of-trade on the current account. The benchmark model applies a permanent income consumption–smoothing framework to the current account setup. According to the model, the current account acts as a buffer to smooth domestic consumption in the face of shocks to aggregate output, investment, government consumption and the terms-of-trade. Based on this model, we can obtain a measure of international capital mobility by adding a liquidity constraint to the benchmark model. In one extreme case where the international capital is not mobile, the liquidity constraint prevails and the current account does not act as a buffer to smooth domestic consumption. In the other extreme where the international capital is perfectly mobile, the liquidity constraint is not binding and the current account behaves according to the prediction of the benchmark model. In an intermediate case where international capital is partially mobile, a measure of international capital mobility can be obtained through the partial correlation between the changes in the current account and the net output (i.e., aggregate output net of investment and government consumption), after controlling for the effect of the terms-of-trade and the real world interest rate. Through the estimation of such model, a measure of the degree of international capital mobility can be obtained. We use the model to obtain estimates of the degree of international capital mobility for nine developed economies: Australia, Canada, France, Germany, Italy, Japan, the Netherlands, the U.K., and the U.S. Our results generally point toward a lower degree of international capital mobility than those found in the previous studies. In particular, our results do not indicate any “excess mobility” of international capital as those found in the previous literature.

The rest of the paper is organized as follows. In Section 2, we derive a general intertemporal current account model which incorporates the effects of changes in the net output, the terms-of-trade, the real interest rate and the international capital mobility on the current account. Estimation results and related discussion are presented in Section 3. In Section 4 we evaluate the performance of the simple intertemporal current account models versus that of the model incorporating the terms-of-trade effect by generating “theoretical” current account series using the method of Campbell (1987). Concluding remarks are made in Section 5.

2. The model

This section explains the model employed in this paper. To construct an intertemporal current account model incorporating the terms-of-trade effect we assume that the world consists of many small open economies, which specialize in the production of different goods and all goods are tradable. To keep things simple, we assume that the home economy produces a single good, which is sold in both domestic and world markets. The representative agent of the home country derives utility from consuming both domestically produced and imported goods. The terms-of-trade (i.e., the price of domestically produced good in terms of imported goods) is determined in the world markets and unaffected by the demand and supply decision of the home economy. Given the assumptions above, a formal intertemporal current account model can be derived from the following setup. The representative agent of the home country maximizes:

$$U = E_t \sum_{s=t}^{\infty} \beta^{s-t} U(C_{m,s}, C_{x,s}) \quad (1)$$

s.t.

$$A_{t+1} = (1 + r_{t+1})[A_t + P_t NO_t - (C_{m,t} + P_t C_{x,t})] \quad (2)$$

¹ The terms-of-trade has traditionally been taken as an important factor in determining the current account in the “elasticity approach” literature, e.g., Harberger (1950) and Laursen and Metzler (1950). In the modern intertemporal current account literature, the terms-of-trade effect on the current account has been explored in Sachs (1981), Obstfeld (1982), Svensson and Razin (1983) and Iscan (2000). However, the model incorporating the terms-of-trade effect has never been used in the literature of measuring international capital mobility.

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