The Graduate Institute | Geneva
International Finance B – Fall 2021
Professor: **Alessandro Missale**
Teaching Assistant: **Hossein Tohidimehr**

# Problem Set 4
# Sudden Stops of Capital Inflows
**Due:** Thursday, November 4th, before the class

**Question 1 – Sudden Stop**

a) Explain the effect of a 'sudden stop' of capital inflows on the current account of a country in deficit using the simple relation between the current account, $CA$, the net acquisition of foreign assets, $\Delta A^*$, and the net sale of domestic assets to foreign residents, $\Delta L^*$. [Just show and comment the relation; no need for precise results]

b) If the country experiencing the sudden stop is a net debtor that pays interests, how is its trade balance affected by the sudden stop? [Assume $\Delta A^* = 0$]

c) Now, suppose the country has no debt and interest payments to make but it experiences a "capital flight", that is, a capital outflow due to the purchase of foreign assets by domestic residents. How does the sudden stop and capital reversal affect the trade balance? Use the relation derived at point a) to support your answer.

d) Explain why a sudden stop leads to a real exchange rate depreciation and a sharp contraction in output.

**Question 2 – Reserves as self-insurance strategy**

Many emerging and developing countries accumulate liquid foreign assets as reserves. Such foreign reserves are sold to finance the current account deficit in case of a sudden stop.

a. Let distinguish foreign reserve assets, $R$, from the other assets held outside the central bank, $A^P$, so that $A = A^P + R$. Then, denoting foreign liabilities as $L$, write the relation between the current account balance, $CA$ (or deficit, $CAdef$) the net sale of domestic assets to foreign residents and the net acquisition of foreign assets, distinguishing between reserve assets and other assets.

b. Suppose the Central Bank (CB) holds reserves for 300 billion dollars, the current account deficit amounts to 180 billion and domestic resident purchase foreign assets for 60 billion. If a sudden stop takes place, so that $\Delta L^* = 0$, how can the CB avoid a current account adjustment and the crisis? How many reserves are left to the CB?

c. Now, suppose that there is a capital reversal because foreign investors liquidate (i.e. sell) their holding of domestic assets by 80 billion dollars. How is this capital outflow recorded in the relation derived before in point a)? What happens to the current account deficit? Can it be maintained, and, if not, by how much must it be corrected?

**Question 3 – TNT model**

Consider the TNT model where we start from an equilibrium in which $Q_N = Z_N$ and $NX = Q_T - Z_T < 0$. Assume that the proportions of tradable and non-tradable goods in aggregate demand, $Z$, remain constant as long as their relatiive price does not change.

a) By how much should $Z_T$ fall to have balanced trade after a sudden stop? (Output and relative prices do not change)

b) Find the demand for non-tradables after the sudden stop (i.e. the demand needed for balanced trade) in terms of the initial trade deficit and $Z_T$.

c) Show that the disequilibrium in the non-tradable good market measured by the excess supply of non-tradable goods is related to the ratio $CAD/Z_T$ that Calvo et al. (2004) use as a measure of expected real depreciation [Assume $CAD \cong -NX$]. Explain the intuition for this result.

**Question 4 – TNT model**

Consider a country with an economy characterized by the TNT model. The market for non-tradable goods is initially in equilibrium, i.e. $Q_N = Z_N$, the trade balance is zero, i.e. $Q_T - Z_T = 0$, as well as the International Investment Position (NIIP), $B_0 = 0$.

a) Suppose this country experiences a significant increase in government consumption that completely falls on non-tradable goods. What happens to the relative price of non-tradables, $P_N/P_T$? Explain why. Does this change in the relative price imply depreciation or an appreciation of the real exchange rate?

b) Now assume that the demand for tradable goods, $Z_T$, does not change, say, because the increase in government expenditure is financed through external debt. What happens to the trade balance?

c) How does the NIIP change as the government maintains the higher consumption of part a) over time? Explain, in words, what happens if there is a sudden stop so that foreign investors stop buying any new debt and the NIIP must be stabilized? In particular, is the initial equilibrium restored, if the increase in government consumption of part a) is fully reversed? Explain why or why not.