

## Problem Set 2: International Capital Markets

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**Due:** **Fri, June 3, at 4:50pm**  
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### 1 Savings, Investment, and the Current Account

If a country's current account is in deficit today (period 1), what does this mean for the relationship between the country's income, consumption, and investment (including both households and the government)? The world ends tomorrow (in period 2). Will the country be a net exporter or net importer of goods and services tomorrow (in period 2)? Will the country be a net exporter or net importer of capital tomorrow (in period 2)?

### 2 Intertemporal Trade

Present a brief explanation for why the theory of international investment can be recast as a theory of international trade. What are key differences between trade in commodities and the exchange of capital? What gains from international investment are there beyond those of intertemporal trade? What are the risks associated with intertemporal trade?

### 3 Capital Market Integration

Consider the effects of capital market integration.

1. An economy has an endowment of income of  $Y_{\text{today}}$  and invests a positive amount of that income  $I$  for future consumption. Draw the economy's intertemporal production possibility frontier and demonstrate today's consumption, today's investment, tomorrow's consumption, and tomorrow's income in a closed economy.
2. Now assume the economy has access to international capital markets at the world interest rate  $(1+r^*)$ . What will this do to the economy's consumption and investment decisions? Again, draw the economy's intertemporal production possibility frontier and demonstrate today's consumption, today's investment, tomorrow's consumption, and tomorrow's income in an open economy.

## 4 Foreign Direct Investment as a Source of Financing

Foreign direct investment (FDI) is an important source of current account financing. What are specific characteristics of FDI that set it apart from other forms of capital? What are advantages and disadvantages of this kind of investment over other types of capital flows? Why? Under what conditions can a country be both a net exporter of goods and services, and simultaneously attract foreign direct investment? Can a country be both a net exporter of goods and services and a net importer of capital?

## 5 Uncertainty, Asymmetric Information and Hidden Action

Explain why the three crucial institutional conditions—verifiability of states of nature, the enforceability of contractual stipulations and the prevention of hidden actions—are crucial for the idea that “the case for free international capital markets is the same as the case for free trade but for the subscribers”. Explain why under these three institutional conditions the diversification of country risk under uncertainty provides another source of gains from intertemporal trade.

Explain how a lacking willingness to repay sovereign debt (lacking international enforceability of contractual stipulations) changes the standard case of intertemporal trade. Explain how a provoked inability to repay sovereign debt (under hidden action) changes the standard case of intertemporal trade, and relate the idea of minimum guaranteed consumption to bailouts.

## 6 Sovereign Risk

Explain why higher default risk increases the interest rate. Provide a numerical example to illustrate your verbal explanation.

Explain in words the moral hazard problem associated with international debt service and default. Distinguish between ability and willingness to repay and explain two scenarios under which lacking willingness to repay can be concealed as lacking ability.

## 7 Bond Values, Yields and Interest Rates

Suppose a 1 dollar bond with 1 year maturity has a 1 dollar face value and is trading at a 33 percent discount. What is the market value of the bond? The contractual interest rate is 8 percent. What is the effective nominal yield on the bond?

Now suppose a bond with 1 year maturity has a face value of  $d$  dollars (including principal and interest). There is a probability of 33 percent that the bond issuer (borrower) will default completely. Otherwise, the issuer will pay in full. What is the market value  $v$  of the bond? The contractual interest rate is 8 percent. What is the effective nominal yield on the bond?

Suppose the default probability increases to 50 percent. What is the market value  $v'$  of the bond now? At a contractual interest rate of 8 percent, what is the effective nominal yield on the bond now?

Consider an investor. There are two bonds. One pays  $v'$  with 100 percent certainty. The other bond pays  $d$  with a 50 percent chance, and zero otherwise. Which bond, if any, will the investor prefer?

## 8 Debt Laffer Curve

Peru's market price of debt is equal to the average market value, and below face value. Would you recommend a debt buyback at the market price? Why or why not? For what set of countries would you recommend debt forgiveness? Why? Use the Debt Laffer curve to substantiate your verbal explanations.

## 9 Current Account Sustainability

Explain how the current account balance differs from the trade balance when there is a net foreign wealth position. Explain why the difference between the current account balance and the trade balance is the same as between GNI and GDP.

Suppose long-term debt sustainability means a stable net foreign wealth position, possibly negative and large, so that the current account balance from a certain point in time on is zero. Explain how the trade balance needs to relate to interest payments in this case.