

PROBLEM SET 1  
(Solutions)

1. (25 points). Suppose the 12-month forward price of the yen in terms of dollars is .02 dollars per yen. Suppose the spot price of the yen in terms of dollars is .019. Next, suppose that currently the annual interest rate on dollar deposits is 2%, while the interest rate on a comparable yen deposit is 1%. There are no transactions costs. Is there an arbitrage opportunity here? If so, explain exactly how you would take advantage of this situation to make riskless profits.

*Covered Interest Parity implies*

$$\frac{F}{E}(1 + R^*) = 1 + R$$

*The right-hand side is the dollar return on a dollar investment, while the left-hand side is the (covered) dollar return on a yen investment. Substituting in the given information, we get*

$$\frac{F}{E}(1 + R^*) = \frac{.02}{.019}1.01 \approx 1.063 > 1 + R = 1.02$$

*Hence, even though the yen interest rate is lower, the covered rate of return from investing in yen is higher than the return from investing in dollars. You can make arbitrage profits by borrowing dollars, then buying yen spot, investing in yen, and then simultaneously selling the (known) amount of future yen forward. You will have more than enough yen to pay back your dollar loan. Your profits are only limited by how many dollars you can borrow! In practice, this would be implemented with a swap contract.*

2. (25 points). Read the article entitled “The Trilemma of International Finance”, by Mankiw, which is posted on the class webpage. According to this article, what is the Trilemma of International Finance? Provide examples of countries that have chosen different policy combinations of the trilemma triangle.

*The Trilemma refers to policy trade-offs in small open economies. Each country would like to achieve the following 3 goals: (1) Open capital markets, which maximize the wealth of the economy, and allow the savings decisions of households to be separated from the investment decisions of firms, (2) Stable exchange rates, which reduce risk and encourage long-term international investment, and (3) An independent monetary policy, which allows a country’s central bank to respond to domestic macroeconomic conditions. As we will discuss in more detail later in the course, in general a country can only guarantee itself two of these goals. One must be sacrificed. Current examples of countries/regions that have resolved this trade-off in different ways are the following: (1) China has opted for a stable exchange rate (against the US dollar) and an independent monetary policy. As a result, they must impose capital controls. Europe has opted for a stable exchange rate (in fact, a common currency!) and open capital markets, but as a result, individual countries within Europe cannot set their own monetary policy. The ECB in Frankfurt sets monetary policy for all of Europe (or at least those countries that belong to the Eurozone). Finally, the US and Canada have opted for open capital markets and independent monetary policy. As a result, they must allow their exchange rates for fluctuate. (For more on this question, read the posted article “Two Out of Three Ain’t Bad”).*