

HW 7

Sunday, September 5, 2021 2:18 AM



ECN 360
Homework...

Cartoon
Konger



ECN 360
Homework 7
Due: 12/14/2021 <Tuesday>

Directions: Answer each question on your own choice of paper. Please be neat! Submit your homework via email to me at: cedougl@umich.edu A .pdf is preferred, though any file works in practice.

1. Suppose that on January 1st, the exchange rate is 120¥/\$. Over the year, the Japanese inflation rate is 5% and the U.S. inflation rate is 10%. If the exchange rate is 130¥/\$ at the end of the year, how does this compare to exchange rate as implied by relative PPP?
2. Suppose at the beginning of the year, a best-selling book sells for €60 in Paris, France and \$60 in New York City, and PPP holds. Over the year, there is an inflation rate of 10% in France and no inflation in the United States. What exchange rate would maintain PPP at the end of the year?
3. List some reasons why deviations from PPP might occur. Carefully explain how each reason causes such deviations.
4. For what type of good would you expect PPP to hold the best for?
5. Write the equation that describes PPP and then explain the equation.
6. The Swiss franc is selling in the spot market for \$0.60 per franc, while in the 90-day forward market, it sells for \$0.62 per franc. Is the franc selling at a premium or a discount? What if the 90-day forward rate was \$0.58 per franc instead?
7. The 1-year interest rate on Swiss francs is 5%, and the dollar interest rate is 8%.
 - a. If the current \$/F spot rate is 0.60, what would you expect the 1-year forward rate to be?
 - b. Suppose U.S. policy changes and leads to an expected future spot rate of 0.63\$/SF. What would you expect the dollar interest rate to be now in order for interest rate parity to hold? (Assume no change in the Swiss interest rate).
8. Why might interest rate parity hold better than purchasing power parity over time?
9. Assume the 3-month interest differential for the dollar minus British pounds is equal to -0.05. The 6-month interest differential is equal to -0.03. Is the British pound selling at a forward premium or a discount relative to the dollar? How is

9. Assume the 3-month interest differential for the dollar minus British pounds is equal to -0.05. The 6-month interest differential is equal to -0.03. Is the British pound selling at a forward premium or a discount relative to the dollar? How is the expected rate of pound appreciation or depreciation changing over time?

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1. Suppose that on January 1st, the exchange rate is 120¥/\$. Over the year, the Japanese inflation rate is 5% and the U.S. inflation rate is 10%. If the exchange rate is 130¥/\$ at the end of the year, how does this compare to exchange rate as implied by relative PPP?

$$\frac{120 \text{ } ¥ \cdot 1.05}{1 \text{ } \$ \cdot 1.10} = \frac{126 \text{ } ¥}{1.10 \text{ } \$} \times \frac{\frac{1}{1.10}}{\frac{1}{1.10}} = \boxed{\frac{113.63 \text{ } ¥}{1 \text{ } \$}} < \boxed{\frac{130 \text{ } ¥}{1 \text{ } \$}}$$

The market overpriced the dollar if PPP holds.

2. Suppose at the beginning of the year, a best-selling book sells for €60 in Paris, France and \$60 in New York City, and PPP holds. Over the year, there is an inflation rate of 10% in France and no inflation in the United States. What exchange rate would maintain PPP at the end of the year?

$$\frac{\text{€ } 60}{\$ 60} \rightarrow \frac{\text{€ } 60 \times 1.10}{\$ 60} = \frac{\text{€ } 66}{\$ 60} \times \frac{\frac{1}{60}}{\frac{1}{60}} = \boxed{\frac{\text{€ } 1.1}{\$ 1}} \quad \text{or} \quad \frac{\$ 0.909}{\text{€ } 1}$$

$0\% - 10\% = -10\%$

$$\boxed{1 - 10\%(1) = 1 - .1 = .9 \frac{\$}{\text{€}}}$$

3. List some reasons why deviations from PPP might occur. Carefully explain how each reason causes such deviations.

different countries hold different inflationary policy

↳ The values of their currencies do not change at the same rate

Goods may be temporal & thus the same good cannot easily be sold in both locations.

Supply Chain / Material prices may fluctuate & cause

Supply Chain / Material Prices may fluctuate & cause additional costs to one country

Taxes May Be Imposed by the residing Country.
non-homogeneous

4. For what type of good would you expect PPP to hold the best for?

Gold ; Oil ; Currencies

↳ Very liquid & easily "cross" Borders

homogeneous

5. Write the equation that describes PPP and then explain the equation.

$$\text{PPP: } \frac{P}{P_F} = \frac{\$/F}{\$/F}$$

Relative: $\hat{\epsilon} = \hat{P} - \hat{P}^F$ % change in rate is the difference in US & foreign inflation rates

6. The Swiss franc is selling in the spot market for \$0.60 per franc, while in the 90-day forward market, it sells for \$0.62 per franc. Is the franc selling at a premium or a discount? What if the 90-day forward rate was \$0.58 per franc instead?

- The franc is selling at a premium in the forward market
- If the forward rate is \$0.58/func then it is selling at a forward discount.

7. The 1-year interest rate on Swiss francs is 5%, and the dollar interest rate is 8%.
- a. If the current \$/F spot rate is 0.60, what would you expect the 1-year forward rate to be?

$$\frac{\$0.60}{\$0.648} \times \frac{1.08}{1.05} = \frac{\$0.648}{1.05 \text{ franc}} = \frac{\$0.617}{\text{franc}}$$

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$$\frac{f - i}{c} = i_f - i_F \quad \text{or} \quad \frac{f - .6}{.6} = .08 - .05 = .03$$

$$f - .6 = .018 \quad ; \quad f = 0.618 \text{ \$/franc}$$

- b. Suppose U.S. policy changes and leads to an expected future spot rate of 0.63\$/SF. What would you expect the dollar interest rate to be now in order for interest rate parity to hold? (Assume no change in the Swiss interest rate).

$$\frac{.63 - .6}{.6} = i_F - .05 \quad \frac{.03}{.6} + .05 = i_g = .1$$

8. Why might interest rate parity hold better than purchasing power parity over time?

while goods require physical transfer ; currencies are often traded electronically.
 ○ ○ Currencies are more liquid and have better price discovery

9. Assume the 3-month interest differential for the dollar minus British pounds is equal to -0.05. The 6-month interest differential is equal to -0.03. Is the British pound selling at a forward premium or a discount relative to the dollar? How is the expected rate of pound appreciation or depreciation changing over time?

$$i_g^3 - i_F^3 = -.05 \quad i_g^6 - i_F^6 = -.03$$

in both cases the exchange rate is selling at a discount

we expect the value of the dollar to decrease from now until 3 months & then increase between 3 & 6 month. relative to the pound ;