ECON 1550 — Problem Set 3

Spring 2026

Due: February 18, 2026 at 11:59pm ET

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Submission: Canvas or Gradescope

Instructions

- When submitting to Gradescope, indicate the page where each question is answered to avoid a 5-point deduction.
- Full credit is given for correct answers. If multiple steps are needed, you must show them to get full credit.
- Points are shown for each part. Partial credit is given for partially correct answers; show your work to maximize it.
- Late submissions receive a score of zero.
- If you have technical problems submitting, email your work to the Head TA before the deadline.
- Collaboration with classmates is encouraged; use of generative AI is permitted but discouraged.
- You must write, understand, and submit your solutions individually. Copying other students' or AI-generated answers, even fragments, is not allowed.

1. **Multiple Choice (25 points)**

Select only one answer.

(a) [5 points] The carry trade

- ◯ (A) has positive average returns because the uncovered interest parity condition holds.
- ◯ (B) has a non-zero risk premium only when covered interest parity holds.
- ◯ (C) is risky because the difference between domestic and foreign interest rates fluctuates over time.
- ◯ (D) earns a zero average risk premium when the uncovered interest parity condition holds.

(b) [5 points] Running a current account deficit is equivalent to

- ◯ (A) net borrowing from the rest of the world.
- ◯ (B) net lending to the rest of the world.

◯ (C) an increase in public savings.

◯ (D) an increase in private savings.

(c) [5 points] If the government has a $100 million budget deficit, private saving is equal to $500 million, private investment is equal to $300 million, what is the value of the current account?

◯ (A) $100 million surplus.

◯ (B) $700 million surplus.

◯ (C) $100 million deficit.

◯ (D) $700 million deficit.

(d) [5 points] Which of the following correctly shows the relationship between savings, the government budget balance, and the current account?

◯ (A) $S^p + CA = I + (T - G)$

◯ (B) $S^p + CA = I + (T + G)$

◯ (C) $S^p + (T - G) = I + CA$

◯ (D) $S^p + (T + G) = I + CA$

(e) [5 points] All else equal, if Canada raises its interest rates,

◯ (A) the U.S. dollar depreciates.

◯ (B) the U.S. demand for Canadian dollars decreases.

◯ (C) the Canadian supply of Canadian dollars increases.

◯ (D) the Canadian dollar will depreciate.

2. **Chapter 3: Exchange Rates and the Foreign Exchange Market: An Asset Approach (75 points)**

(a) [25 points] Please answer question 11 from Chapter 3 of the textbook, reproduced here for convenience:

> "Suppose the dollar exchange rates of the euro and the yen are equally variable. The euro, however, tends to depreciate unexpectedly against the dollar when the return on the rest of your wealth is unexpectedly high, while the yen tends to appreciate unexpectedly in the same circumstances. As a U.S. resident, which currency, the euro or the yen, would you consider riskier?"

(b) [25 points] Consider our model of exchange rate determination through uncovered interest parity (UIP) for two time periods, t and $t + 1$. Tables I and II summarize

this two-period model. The behavioral equation for the expected exchange rate at $t+1$, E^e_{t+1}, is missing from Table II (the entry for that equation is '??'). Propose a reasonable behavioral equation for E^e_{t+1} such that an (exogenous) increase in E^e_t results in an increase in E_{t+1}. Explain the intuition for why E_{t+1} increases when E^e_t increases.

Hint: By reasonable, we mean reasonable to you. This is your own new model of exchange rate determination!

Table I: Exogenous variables

Variable	Description
R_t	Domestic interest rate at t
R^*_t	Foreign interest rate at t
E^e_t	Expected exchange rate at t
R_{t+1}	Domestic interest rate at $t+1$
R^*_{t+1}	Foreign interest rate at $t+1$

Table II: Endogenous Variables and Equations

Variable	Description	Equation	Type of equation
E_t	Exchange rate at t	$R_t = R^*_t + \frac{E^e_t - E_t}{E_t}$	Equilibrium condition
E_{t+1}	Exchange rate at $t+1$	$R_{t+1} = R^*_{t+1} + \frac{E^e_{t+1} - E_{t+1}}{E_{t+1}}$	Equilibrium condition
E^e_{t+1}	Expected exchange rate at $t+1$	??	Behavioral equation

(c) [25 points] Question 18 from Chapter 3 of the textbook states:

> "The interest rate on U.S. three-month Treasury bills dropped to very low levels at the end of 2008 and remained there for several years. Starting in January 2009 and ending in December 2019, find data on the three-month Treasury bill rate from Federal Reserve Economic Data (FRED) at the Federal Reserve Bank of St. Louis; find data on the exchange rate of the U.S. dollar against the Korean won from the Bank of Korea Economic Statistics System at http://ecos.bok.or.kr/flex/EasySearch_e.jsp; and from the same source, find data on the Korean 91-day Monetary Stabilization Bond interest rate. Imagine that you borrow dollars at the Treasury bill rate to invest in Korean stabilization bonds, thus doing a carry trade that exposes you to the risk

of won/dollar exchange rate fluctuations. As in the Case Study in the text, calculate the total return on your carry trade for every month starting in February 2009 and ending in December 2019."

Please answer this question but end your analysis in July 2023 (rather than on the earlier date in the textbook's question). In addition to calculating the returns, please include a plot that shows the calculated total returns[1] (on the vertical axis) for each month (on the horizontal axis) assuming your initial investment was $100.

Note also that the link http://ecos.bok.or.kr/flex/EasySearch_e.jsp to find data from the Bank of Korea Economic Statistics System provided by the textbook is outdated and no longer works. The correct link is:

`https://ecos.bok.or.kr/#/SearchStat`

Be patient on the first load, it takes a while to load the page but works well after that.

Hint: You can review how to compute payoffs and returns for the carry trade in these lecture slides.

[1]Total returns are the same as cumulative returns. For example, if your initial investment is $100 in January 2023 and the value of your portfolio is $120 in March 2023, then your total (cumulative) return is $120/100 - 1 = 0.2 = 20\%$. This 20% return can be achieved with different combinations of monthly (not cumulative) returns for the months of January, February, and March.