

Final Exam Sample Short Answer Questions. 10 Marks each.

1) The Bank of Canada purchases \$10 million worth of government bonds from the chartered banks. The legal reserve requirement is 5%.

Show this transaction on the Banks' balance sheets. What is the total change in the money supply?

2) There is only one chartered bank in the country of Adana, and it has the following assets and liabilities:

Currency reserves	\$20 million
Reserves held at the Bank of Adana	\$10 million
Loans	\$700 million
Securities	\$20 million
Deposits	\$750 million

- Assuming that the bank has freely chosen its reserves, what is the desired reserved ratio?
- If the amount of currency in circulation is \$50 million, what is the monetary base? What is the money supply?
- What is the currency drain ratio?

- Desired reserve ratio:
reserves/deposits = $30/750 = 0.04$
- Monetary base:
reserves + currency in circulation = $20+10+50 = \$80$ million
Money supply:
currency in circulation + deposits = $50+750 = \$800$ million
- Currency Drain ratio:
currency in circulation/deposits = $50/750 = 0.0667$

3) Consider the balance sheet in the table below.

Bank of Speedy Creek			
Assets		Liabilities	
Reserves	60/+100	Deposits	1,000
Securities	100/-100	Deposits	0
Loans	840/0		
Total	1,000		

Bank of Canada**Assets****Liabilities**

Government Securities	9,000/+100	Bank of Canada Notes	10,000/0
Loans to Bank	500/0	Chartered banks Deposits	1,000/+100
Other net Assets	2,000/0	Government Deposits	500/0
Total	11,500 /+100		11,500/+100

Suppose the Bank of Canada buys all \$100 of securities from the Bank of Speedy Creek. What happens to the balance sheets of the Bank of Speedy Creek and the Bank of Canada as a result of this action, explaining the process. What does this action do to the reserves in the banking system?

The Bank of Canada increases its securities by 100, and pays for it by increasing the Bank of Speedy Creek's deposits at the Bank of Canada by 100 which is an increase in this bank's reserves by 100 (matching the decrease in security holdings). The increase in bank's deposits of 100 also increases the reserves of the banking system by 100.

4) The table below shows some exchange rates for the Canadian dollar.

	USD	JPY	CAD
USD	-	0.78	? 0.94
JPY	? 1.28	-	? 1.21
CAD	1.06	0.83	-

- Fill in the missing values in the table showing all calculations.
- If you were a trader, could you make money starting with \$100 Canadian, buying some USD, using your USD to buy some Japanese Yen, and then use your yen to buy Canadian dollars? (Ignore rounding errors of 1% or less)

Values are calculated by inverting the existing values: eg $1.28 = 1/0.78$

The columns for each currency tell us what they buy. CAD \$100 will buy USD \$94. Going to the USD column, USD\$94 will buy JPY\$120 (94×1.28). Going to the JPY column, JPY\$120 can buy CAD\$100 (120×0.83). Therefore there is no profit opportunity, the rates are aligned.

5) Suppose that the nominal exchange rate between the Canadian dollar and the euro is 2 euros per dollar, that the price level in Canada is 122.7, and the price level in Europe is 200.5.

- What is the real exchange rate expressed as units of Eurozone real GDP per units of Canadian real GDP?

- b. Does purchasing power hold?
- c. Of purchasing power does not hold, explain what will happen in the foreign exchange market in the long run to create purchasing power parity.

a. the real exchange rate is calculated with the formula:

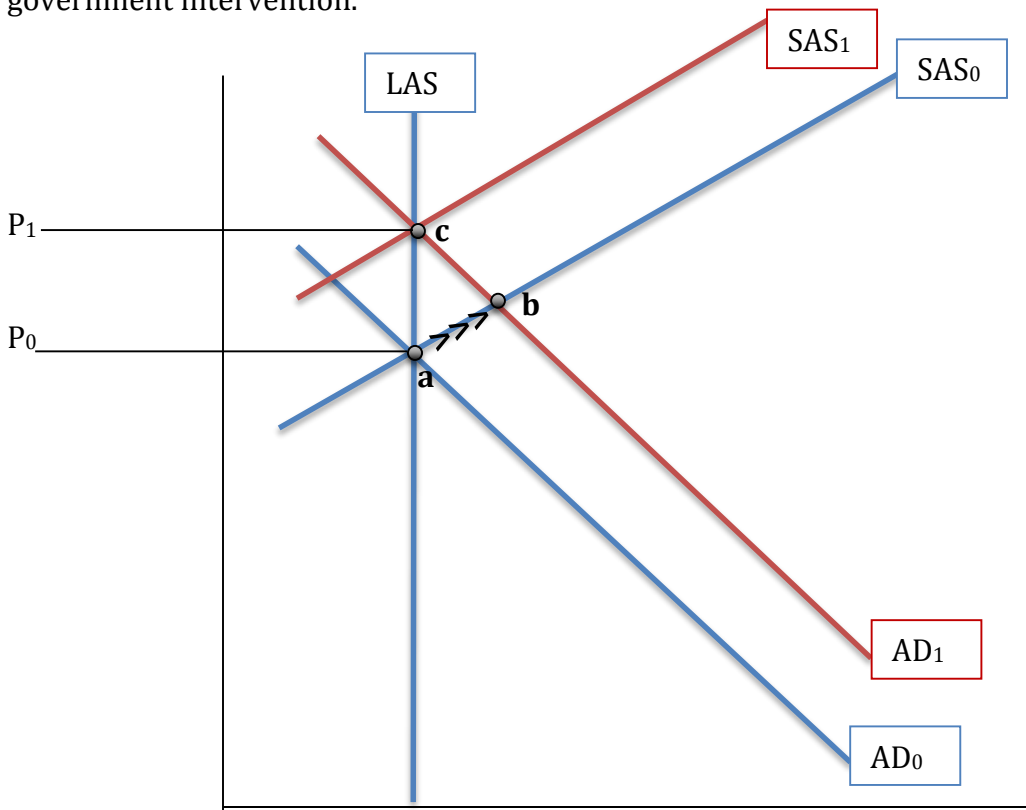
$$RER = E \times (P_C / P_E) = 2 (122.7 / 200.5) = 1.224$$

The real exchange rate is 1.224 units of Eurozone real GDP per unit of Canadian real GDP.

b. no, PPP does not hold. When it holds, the real exchange rate = 1. If we bought the “average” Eurozone good at 200.5 euros, this converts to CAD \$100.25 (=200.5/2) which is less than the price of the average Canadian good (122.7)

c. there is a profit opportunity to be made by moving relatively cheaper Eurozone goods from Europe to Canada. Traders carrying out this arbitrage will be buying up European goods and demanding euros to do so. The extra demand for euros will raise the value of the euro and lower the value of the Canadian dollar (lower the nominal exchange rate) to something less than 2 euros per CAD this in turn will eventually erase the profit opportunity, as the real exchange rate converges on 1.

6. Consider an economy that is in above full-employment equilibrium due to an increase in AD. Prices of productive resources have not changed. With the help of a graph, discuss how the economy returns to full-employment equilibrium with not government intervention.



The increase in AD from AD_0 to AD_1 , results in above full-employment equilibrium at point b and causes the price level to increase. Since money wage rates have not changed, the real cost of labour to firms decreases, profits rise, and output is stimulated as indicated by the movement along the SAS_0 curve from point a to point b. Furthermore the purchasing power of workers money wage rates decreases.

Workers eventually demand higher money wage rates and firms will be willing to pay them. Similarly, other prices of productive resources will increase. This increase in prices of productive resources shifts the SAS curve leftward, resulting in a new equilibrium. There will continue to be pressure for money wage rates and other prices of productive resources to increase until the SAS curve shifts all the way to SAS_1 where the purchasing power of the money wage rates and other prices of productive resources has been restored and the economy is again at full employment, point c.

7. Consider an economy with the following components of aggregate expenditure:

Consumption function: $C=20 + 0.8Y$

Investment function: $I = 30$

Government expenditures: $G = 8$

Export function: $X= 4$

Import function: $M=2 + 0.2Y$

There are no taxes so $YD = Y$

- What is the marginal propensity to consume in this economy?
- What is the equation of the aggregate expenditure function in this economy?
- Find this economy's equilibrium aggregate expenditure and real GDP by completing columns on the table below.

Y	C	I	G	X	M	AE
0	20	30	8	4	2	60
30	44	30	8	4	8	78
60	68	30	8	4	14	96
90	92	30	8	4	20	114
120	116	30	8	4	26	132
150	140	30	8	4	32	150
180	164	30	8	4	38	168

- a. from the consumption function equation we know this value is $0.8 = \Delta C/\Delta Y$
 b. Substitute the various equations into:

$$AE = C + I + G + X - M$$

$$AE = 20 + 0.8Y + 30 + 8 + 4 - 2 - 0.2Y$$

$$AE = 60 + 0.6 Y$$

c. see values in table. Table is constructed by substituting the various values of Y into the equations. Note that equilibrium occurs when **AE = Y at 150**.

8. The table below gives some information on the real interest rates, inflation rates, and tax rates from three different countries.

	Ricardia	Barroland	Lafferia
Nominal interest Rate	12%	10%	10%
Inflation Rate	6%	5%	6%
Tax rate	40%	50%	50%
Real, before tax interest rate	6%	5%	4%
Real, after tax interest rate	1.2%	0%	-1%
Tax wedge	4.8%	5%	5%

- a. Complete the table
 b. Assuming all other factors are equal, which country has the biggest negative incentive effects for lenders? Lowest costs for investors?
 a. Real, before tax interest rate = Nominal Interest Rate – Inflation Rate
 Real, after tax interest rate = (Nominal Interest Rate x Inverse of Tax Rate) – Real, before tax interest rate = $(12 \times 0.6) - 6 = 1.2$
 b. based on having the highest tax wedge, Lafferia and Barroland have the biggest negative incentive effect for lenders.

9. How does an open market purchase of government securities lead to a decrease in the overnight rate?

What are the ripple effects of this policy on the different components of aggregate expenditure?

An open market purchase of government securities by the Bank of Canada increases the reserves of the banking system by increasing one of its components – bank deposits at the Bank of Canada. When the securities are purchased from banks, the Bank of Canada pays for the securities by crediting the bank's deposit at the Bank of Canada, which directly increases their reserves. The banks now have more reserves and will try to lend more on the overnight market and will need to borrow less, putting downward pressure on overnight rates.

The lower overnight rates create substitution effects, pushing down other interest rates, increasing consumption expenditure and investment spending. The lower interest rates also lower demand for the Canadian dollar, which lowers the value of the exchange rate and increases net exports.

10. Suppose the currency drain is 20% and the required reserve ratio is 10%.

- a. What does the money multiplier equal?
 - b. If the Government purchases \$10 million of government securities, by how much will the quantity of money increase or decrease?
- a. the money multiplier is 3.57. the money multiplier = $1/(1-L) = (0.80) \times (0.90) = 0.72$. therefore the money multiplier = $1/(1- 0.72) = 1/0.28 = 3.57$
 - b. if the Bank of Canada purchases \$10 million of Canadian government securities, the quantity of money increases by $(\$10 \text{ million}) \times (3.57) = \35.7 million

11. Suppose there is a \$200 billion deflationary gap. If there are no taxes or imports, to restore the economy back to potential GDP, how much should government spending be changed if the MPC is 0.75? Does government spending need to be increased or decreased?

The multiplier is equal to $1/(1- MPC)$. So with a MPC of 0.75, the expenditure multiplier is $1/(1- 0.75) = 1/0.25$ which is 4. Dividing the size of the deflationary gap \$200 billion by 4 shows that government spending needs to be changed by \$50 billion to restore the economy back to potential GDP. Because a deflationary gap occurs when real GDP is less than potential GDP, real GDP needs to increase in order for it to equal potential GDP. So because real GDP needs to be increased government spending needs to increase.

Questions from the Textbook

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Chapter 26

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