International economics

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11 January 2023, 12.00

Surname: _____

First name: _____

ID or passport number: _____

Question	Points	Obtained
1	8	
2	8	
3	8	
4	8	
5	8	
Total	40	

Instructions

The exam consists of **five questions.**

In total, it is possible to obtain up to **40 points**.

Duration of exam: **1 hour and 20 minutes** (= 2 minutes per point or 16 minutes per question).

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1.

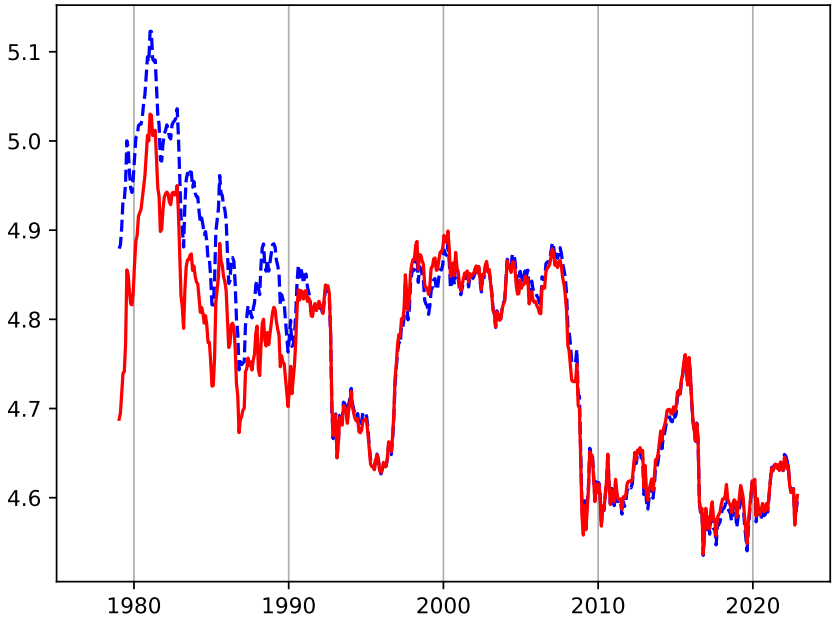


Figure 1: Nominal effective exchange rate, s_t (dashed line), and real effective exchange rate, q_t (solid line) of the United Kingdom. Monthly data in natural logarithms. The ticks on the horizontal axis correspond to the start of the corresponding years. Source: International Financial Statistics (IMF).

	$\Delta_{12} s_t$	$\Delta_{12} s_t - \Delta_{12} s_{t-12}$
Sep 1986	-0.154287	-0.205826
Oct 1986	-0.184629	-0.245910
Nov 1986	-0.170357	-0.226149
Dec 1986	-0.161533	-0.224887
Nov 1992	-0.148743	-0.113163
Feb 1993	-0.167574	-0.129258
Jun 1993	-0.147969	-0.176000
Sep 2008	-0.146294	-0.143970
Nov 2008	-0.196623	-0.176406
Dec 2008	-0.240771	-0.193686
Jan 2009	-0.224949	-0.131450
Feb 2009	-0.189543	-0.094941
Mar 2009	-0.202655	-0.107703
Apr 2009	-0.157227	-0.035672
Jul 2016	-0.154582	-0.214259
Aug 2016	-0.175809	-0.243749
Sep 2016	-0.157850	-0.215638
Oct 2016	-0.189721	-0.229607
Nov 2016	-0.194923	-0.256183
Dec 2016	-0.153386	-0.202203

Table 1: The 20 months with the largest year-on-year nominal depreciations of the British pound since the 1970s, in chronological order. Source: International Financial Statistics (IMF).

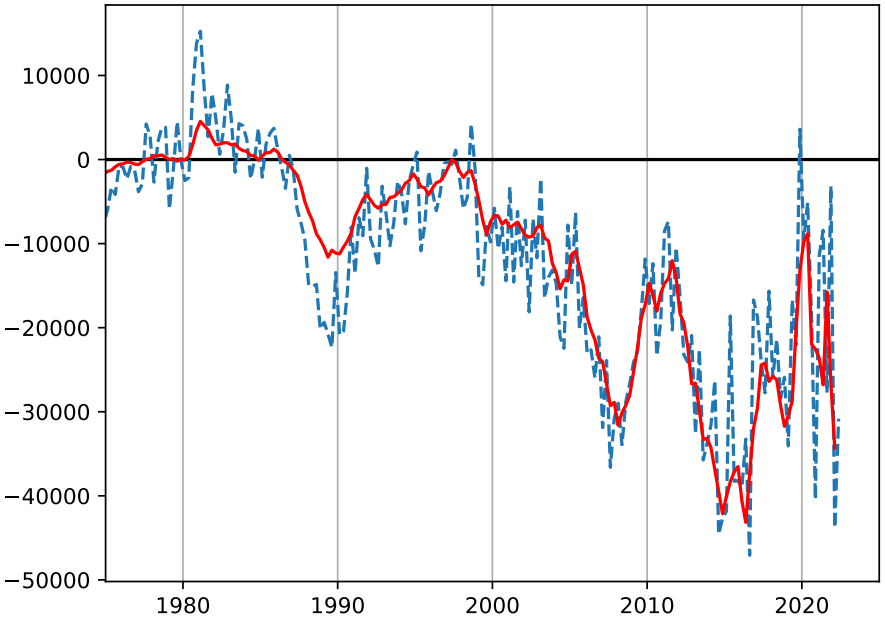


Figure 2: Current account, CA_t, of the United Kingdom. The original series is shown as a dashed line and the 4-quarter, centered moving average shown as a solid line. Quarterly data in billions of 2010 US dollars (USD). The ticks on the horizontal axis correspond to the start of the corresponding years. Source: International Financial Statistics (IMF).

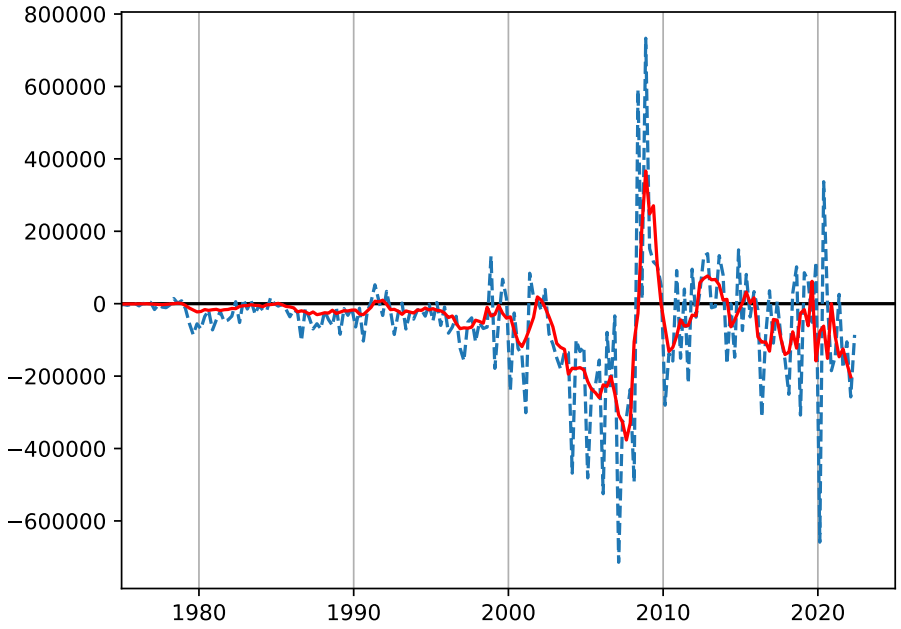
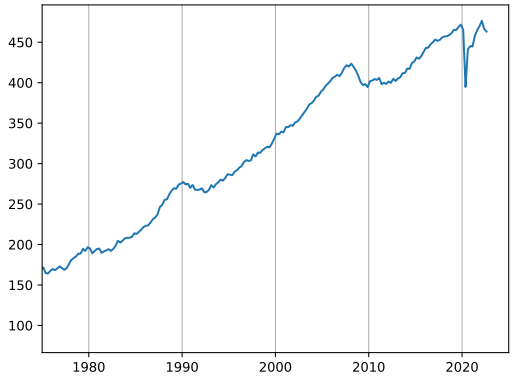
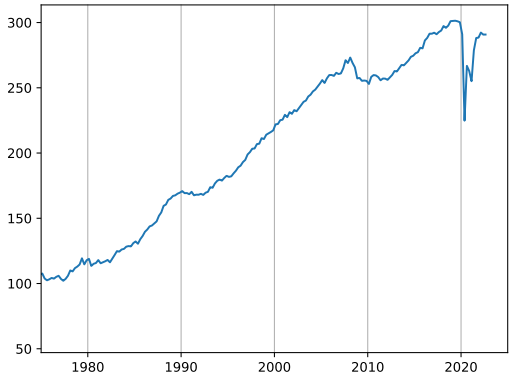


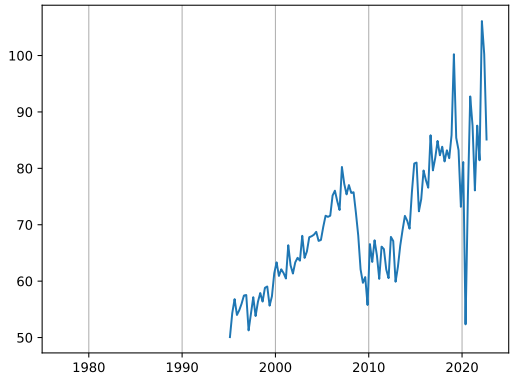
Figure 3: Net capital outflows excluding loan investment outflows, approximately equal to the sum of direct investment and portfolio investment outflows, $\text{DI}_t + \text{PI}_t$, of the United Kingdom. Negative values indicate net capital inflows. The original series is shown as a dashed line and the 4-quarter, centered moving average shown as a solid line. Quarterly data in billions of 2010 US dollars (USD). The ticks on the horizontal axis correspond to the start of the corresponding years. Source: International Financial Statistics (IMF).



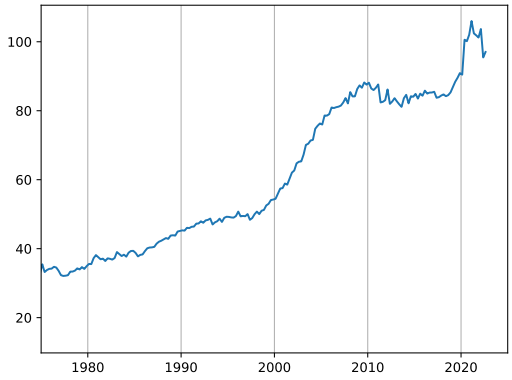
(a) GDP, Y_t^{P}



(b) Consumption spending, C_t



(c) Investment spending, I_t



(d) Government spending, G_t

Figure 4: GDP, household consumption, investment and government spending in the United Kingdom. Quarterly data in billions of 2010 British pounds (GBP). The ticks on the horizontal axis correspond to the start of the corresponding years. Source: International Financial Statistics (IMF).

This questions looks at the exchange rate performance of the United Kingdom since the 1970s. Consider figure 1, which plots the United Kingdom's nominal effective (= trade-weighted) and real effective (= trade-weighted) exchange rates. After a gradual depreciation of both exchange rates in the United Kingdom during the 1980s, we observe four large depreciations in 1992–1993, 2008–2009, 2015–2016 and 2021–2022. Use the information provided in table 1 and figures 1 to 4 as well as in the current account rankings provided at the end of this question to answer the following questions.

(a) According to figure 1, the Britain's nominal exchange rate was higher than its real exchange rate during the 1980s, yet since the early 1990s both exchange rates have moved very closely together. Based on these facts, what can we infer regarding the difference between the domestic and foreign inflation rates during the 1980s and beyond. (Hint: Use the definition of the real exchange rate to establish the relationship between the variables in question.) [1]

(b) State the two criteria that we discussed in class and that according to Frankel and Rose (1996) have to be fulfilled for a currency crisis to have taken place? [1]

(c) Table 1 lists the months of the past decades in which the British pound depreciated most strongly (Δ_{12} is the 12-month difference; that is, $\Delta_{12}s_t = s_t - s_{t-12}$). According to the criteria mentioned in part b of this question, in which years and months, if any, did currency crises occur in the United Kingdom? [1]

(d) Independently of whether the criteria of part b were fulfilled, the fall of the pound in 1992–1993 is generally considered a currency crisis. What is the name of this currency crisis? Which other countries were effected (state at least two)? [1]

(e) In 2008–2009, Britain's nominal exchange rate experienced an even steeper fall. Again independently of whether the criteria of part b were fulfilled, let's consider this episode a currency crisis, too. According to one theory, currency crises are the result loose fiscal policy and high money growth. Why can we rule out that this theory played a significant role in the 2008–2009 currency crisis. (Hint: Look at behaviour of s_t and q_t.) [1]

(f) If it was not high budget deficits and large increases in the money supply, what was the cause of the 2008–2009 currency crisis then? [2]

(g) During Liz Truss's tenure as Prime Minister of the United Kingdom from 6 September to 24 October 2022, the British pound fell from an initial value of 1.1516 USD per GBP (on 6 September) to a minimum of 1.0684 USD per GBP (on 26 September), a fall by 7.2%. Most observers put the blame on the "The Growth Plan", or "mini-budget", which the Chancellor of the Exchequer, Kwasi Kwarteng, announced on 23 September and which contained significant spending increases and tax cuts. However, from figure 1 we can see that the pound had started to depreciate much earlier (indeed, since the third quarter of 2021), indeed long before Truss had become Prime Minister. From the evidence provided, which factors do you think may have contributed to the pound's slide since 2021? [1]

Total of question 1: [8]

Current account rankings - surplus and deficit countries						
Computation: Nikolas A. Müller-Plantenberg						
Data: IMF World Economic Outlook (13/04/2020)						
Country codes: ISO 3166-1 alpha-3						
https://en.wikipedia.org/wiki/ISO_3166-1_alpha-3						
Surplus countries						
Year	**Rank**					
	1	**2**	**3**	**4**	**5**	**6**
[1980]	'SAU'	'KWT'	'ARE'	'QAT'	'LBY'	'NGA'
[1981]	'SAU'	'KWT'	'ARE'	'GBR'	'QAT'	'USA'
[1982]	'SAU'	'ARE'	'JPN'	'DEU'	'QAT'	'NLD'
[1983]	'JPN'	'MEX'	'KWT'	'ARE'	'NLD'	'VEN'
[1984]	'JPN'	'MEX'	'DEU'	'ARE'	'KWT'	'TWN'
[1985]	'JPN'	'DEU'	'TWN'	'ARE'	'CHE'	'MEX'
[1986]	'JPN'	'DEU'	'TWN'	'KWT'	'CHE'	'NLD'
[1987]	'JPN'	'DEU'	'TWN'	'KOR'	'MEX'	'CHE'
[1988]	'JPN'	'DEU'	'KOR'	'TWN'	'CHE'	'NLD'
[1989]	'JPN'	'DEU'	'TWN'	'NLD'	'KWT'	'CHE'
[1990]	'DEU'	'JPN'	'TWN'	'VEN'	'CHE'	'NLD'
[1991]	'JPN'	'TWN'	'CHE'	'NLD'	'SGP'	'BEL'
[1992]	'JPN'	'CHE'	'TWN'	'NLD'	'BEL'	'BRA'
[1993]	'JPN'	'CHE'	'NLD'	'ITA'	'BEL'	'FRA'
[1994]	'JPN'	'CHE'	'NLD'	'ITA'	'BEL'	'SGP'
[1995]	'JPN'	'NLD'	'ITA'	'CHE'	'BEL'	'SGP'
[1996]	'JPN'	'ITA'	'NLD'	'FRA'	'CHE'	'SGP'
[1997]	'JPN'	'FRA'	'CHN'	'ITA'	'CHE'	'NLD'
[1998]	'JPN'	'FRA'	'KOR'	'CHN'	'ITA'	'CHE'
[1999]	'JPN'	'FRA'	'CHE'	'RUS'	'KOR'	'CHN'
[2000]	'JPN'	'RUS'	'FRA'	'CHE'	'NOR'	'CHN'
[2001]	'JPN'	'FRA'	'RUS'	'NOR'	'CHE'	'CHN'
[2002]	'JPN'	'DEU'	'CHN'	'FRA'	'RUS'	'CHE'
[2003]	'JPN'	'CHE'	'CHN'	'DEU'	'RUS'	'NLD'
[2004]	'JPN'	'DEU'	'CHN'	'RUS'	'CHE'	'SAU'
[2005]	'JPN'	'DEU'	'CHN'	'SAU'	'RUS'	'CHE'
[2006]	'CHN'	'JPN'	'DEU'	'SAU'	'RUS'	'NLD'
[2007]	'CHN'	'DEU'	'JPN'	'SAU'	'RUS'	'NLD'
[2008]	'CHN'	'DEU'	'JPN'	'SAU'	'RUS'	'NOR'
[2009]	'CHN'	'DEU'	'JPN'	'RUS'	'NLD'	'NOR'
[2010]	'CHN'	'JPN'	'DEU'	'CHE'	'RUS'	'SAU'
[2011]	'DEU'	'SAU'	'CHN'	'JPN'	'RUS'	'NLD'
[2012]	'DEU'	'CHN'	'SAU'	'NLD'	'KWT'	'ARE'
[2013]	'DEU'	'CHN'	'SAU'	'NLD'	'CHE'	'KOR'
[2014]	'DEU'	'CHN'	'KOR'	'SAU'	'NLD'	'TWN'
[2015]	'CHN'	'DEU'	'JPN'	'KOR'	'CHE'	'TWN'
[2016]	'DEU'	'CHN'	'JPN'	'KOR'	'TWN'	'CHE'
[2017]	'DEU'	'JPN'	'CHN'	'NLD'	'TWN'	'KOR'
[2018]	'DEU'	'JPN'	'RUS'	'NLD'	'KOR'	'SAU'
[2019]	'DEU'	'JPN'	'CHN'	'RUS'	'NLD'	'CHE'
[2020]	'DEU'	'JPN'	'CHN'	'NLD'	'CHE'	'RUS'
[2021]	'DEU'	'JPN'	'CHN'	'NLD'	'CHE'	'TWN'
[2022]	'DEU'	'JPN'	'CHN'	'NLD'	'CHE'	'SGP'
[2023]	'DEU'	'JPN'	'CHN'	'NLD'	'CHE'	'SGP'
[2024]	'DEU'	'JPN'	'NLD'	'CHE'	'CHN'	'SGP'

Deficit countries						
Year	Rank					
	1	2	3	4	5	6
[1980]	'ITA'	'DEU'	'BRA'	'MEX'	'JPN'	'KOR'
[1981]	'MEX'	'ITA'	'CAN'	'BRA'	'AUS'	'KOR'
[1982]	'BRA'	'FRA'	'ITA'	'AUS'	'NGA'	'KOR'
[1983]	'USA'	'SAU'	'BRA'	'IDN'	'AUS'	'FRA'
[1984]	'USA'	'SAU'	'AUS'	'ITA'	'EGY'	'GBR'
[1985]	'USA'	'SAU'	'AUS'	'CAN'	'ITA'	'IND'
[1986]	'USA'	'SAU'	'CAN'	'AUS'	'GBR'	'IRN'
[1987]	'USA'	'CAN'	'GBR'	'SAU'	'AUS'	'IND'
[1988]	'USA'	'GBR'	'CAN'	'AUS'	'ITA'	'SAU'
[1989]	'USA'	'GBR'	'CAN'	'AUS'	'ITA'	'ESP'
[1990]	'USA'	'GBR'	'ITA'	'CAN'	'ESP'	'AUS'
[1991]	'ITA'	'SAU'	'DEU'	'KWT'	'CAN'	'MEX'
[1992]	'USA'	'MEX'	'ITA'	'DEU'	'CAN'	'ESP'
[1993]	'USA'	'MEX'	'CAN'	'DEU'	'SAU'	'GBR'
[1994]	'USA'	'MEX'	'DEU'	'AUS'	'CAN'	'ARG'
[1995]	'USA'	'DEU'	'AUS'	'BRA'	'THA'	'KOR'
[1996]	'USA'	'KOR'	'BRA'	'DEU'	'AUS'	'THA'
[1997]	'USA'	'BRA'	'AUS'	'ARG'	'DEU'	'KOR'
[1998]	'USA'	'BRA'	'AUS'	'MEX'	'DEU'	'ARG'
[1999]	'USA'	'GBR'	'DEU'	'BRA'	'AUS'	'ESP'
[2000]	'USA'	'GBR'	'DEU'	'ESP'	'BRA'	'MEX'
[2001]	'USA'	'GBR'	'ESP'	'BRA'	'MEX'	'PRT'
[2002]	'USA'	'GBR'	'ESP'	'AUS'	'MEX'	'PRT'
[2003]	'USA'	'GBR'	'ESP'	'AUS'	'GRC'	'PRT'
[2004]	'USA'	'ESP'	'GBR'	'AUS'	'PRT'	'TUR'
[2005]	'USA'	'ESP'	'GBR'	'AUS'	'TUR'	'PRT'
[2006]	'USA'	'ESP'	'GBR'	'AUS'	'TUR'	'GRC'
[2007]	'USA'	'ESP'	'GBR'	'AUS'	'GRC'	'TUR'
[2008]	'USA'	'ESP'	'GBR'	'ITA'	'GRC'	'AUS'
[2009]	'USA'	'GBR'	'ESP'	'AUS'	'ITA'	'CAN'
[2010]	'USA'	'GBR'	'BRA'	'ITA'	'CAN'	'ESP'
[2011]	'USA'	'IND'	'BRA'	'TUR'	'ITA'	'GBR'
[2012]	'USA'	'GBR'	'IND'	'BRA'	'AUS'	'CAN'
[2013]	'USA'	'GBR'	'BRA'	'TUR'	'CAN'	'AUS'
[2014]	'USA'	'GBR'	'BRA'	'AUS'	'TUR'	'CAN'
[2015]	'USA'	'GBR'	'AUS'	'SAU'	'CAN'	'BRA'
[2016]	'USA'	'GBR'	'CAN'	'AUS'	'TUR'	'DZA'
[2017]	'USA'	'GBR'	'IND'	'TUR'	'CAN'	'AUS'
[2018]	'USA'	'GBR'	'IND'	'CAN'	'IDN'	'AUS'
[2019]	'USA'	'GBR'	'IND'	'CAN'	'IDN'	'BRA'
[2020]	'USA'	'GBR'	'IND'	'IDN'	'CAN'	'AUS'
[2021]	'USA'	'GBR'	'IND'	'IDN'	'CAN'	'MEX'
[2022]	'USA'	'GBR'	'IND'	'IDN'	'CAN'	'MEX'
[2023]	'USA'	'GBR'	'IND'	'IDN'	'CAN'	'BRA'
[2024]	'USA'	'IND'	'GBR'	'IDN'	'BRA'	'CAN'

2. (a) i) Give a real-world example of an exchange of two goods between two countries, in which both countries benefit from comparative advantage. [2]

ii) Give a real-world example of two countries that exchange goods and both benefit from trade due to economies of scale. [2]

(b) i) What is a financial crisis? [1]

ii) State six examples of financial crises. [3]

Total of question 2: [8]

3. (a) This question considers the theory of international borrowing and lending. [6]

Draw a graph with the (concave) production possibility frontier (PPF) for two periods. Show that the horizontal intercept can be interpreted as the sum of three quantities:

- the amount D_1 that is consumed in the first period,
- the amount $Q_1 - D_1$ that is neither consumed nor invested, but exported or imported and
- the amount K_1 that is invested in the first period for production in the second period.

Also draw the budget constraint, that is, the line with the possible amounts of consumption in both periods if the country is able to lend to, and borrow from, abroad.

Finally, draw an indifference curve to show how the amounts that are consumed in the first and second periods are determined.

(b) What does the slope of the PPF represent? [1]

(c) What does the slope of the budget constraint represent? [1]

Total of question 3: [8]

4. (a) For each of the cases below, state an example of a transaction that would affect the balance of payments in the indicated way. Note that the financial account (FA) is defined as the net *increase* in foreign financial assets.

   Also state in each case how the transaction affects Y^{E}, Y^{P}, Y, TB and CA.

   i) $\oplus$ in [CA - Income - From investment], $\oplus$ in [FA - Other investment - Money]. [2]

   ii) $\oplus$ in [CA - Goods], $\ominus$ in [KA - Capital transfers]. [2]

   iii) $\oplus$ in [FA - Direct investment], $\ominus$ in [FA - Other investment - Money]. [2]

   (b) Finally, answer the following two questions:

   i) Can a transaction affect consumption negatively? Explain briefly. [1]

   ii) Why is money a financial asset? In other words, who is the liability holder? [1]

Total of question 4: [8]

5. (a) What are "official reserves" and what is the activity of buying and selling official reserves called? [2]

(b) Which other important activity do central banks engage in? Of what does this activity consist? [2]

(c) Suppose the central bank of a country wants to keep the nominal exchange rate, s_t, stable.

i) Use the currency flow model to determine how many reserves the central bank has to buy or sell in each period to achieve its goal? [2]

ii) Apart from using official reserves, what other action could the central bank undertake in support of its currency, in particular in order to attract capital inflows to push up the exchange rate in case of downward pressure. [1]

(d) What consequence does it have for the theory of purchasing power parity (PPP) if the nominal exchange rate is left to float rather than fixed? Please provide a brief answer. [1]

Total of question 5: [8]

References

Frankel, Jeffrey A. and Andrew K. Rose. Currency crashes in emerging markets: An empirical treatment. *Journal of International Economics*, vol. 41, no. 3, Nov. 1996, 351–366.