

International macroeconomics and finance  
(postgraduate course)  
2018–2019 — Final exam (first part)

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25 March 2019, 12.00

Surname: \_\_\_\_\_

First name: \_\_\_\_\_

ID or passport number: \_\_\_\_\_

Group: \_\_\_\_\_

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** (= 1.5 minutes per point or 12 minutes per question).

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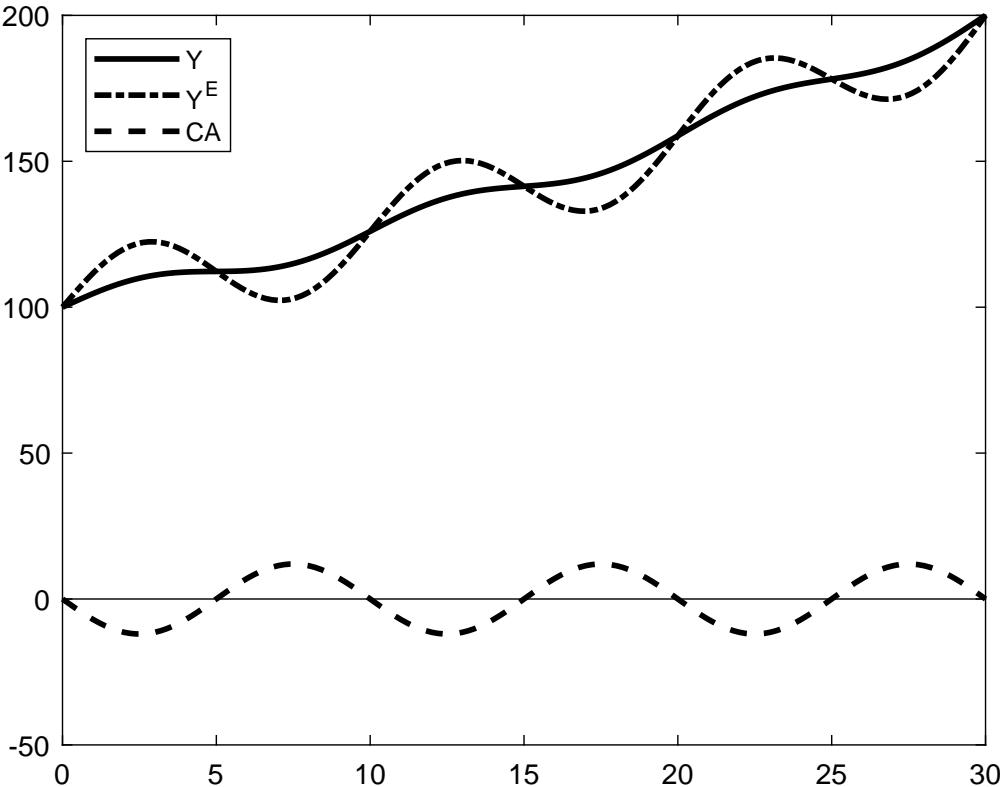


Figure 1: Dynamics of  $Y$ ,  $Y^E$  and  $CA$ .

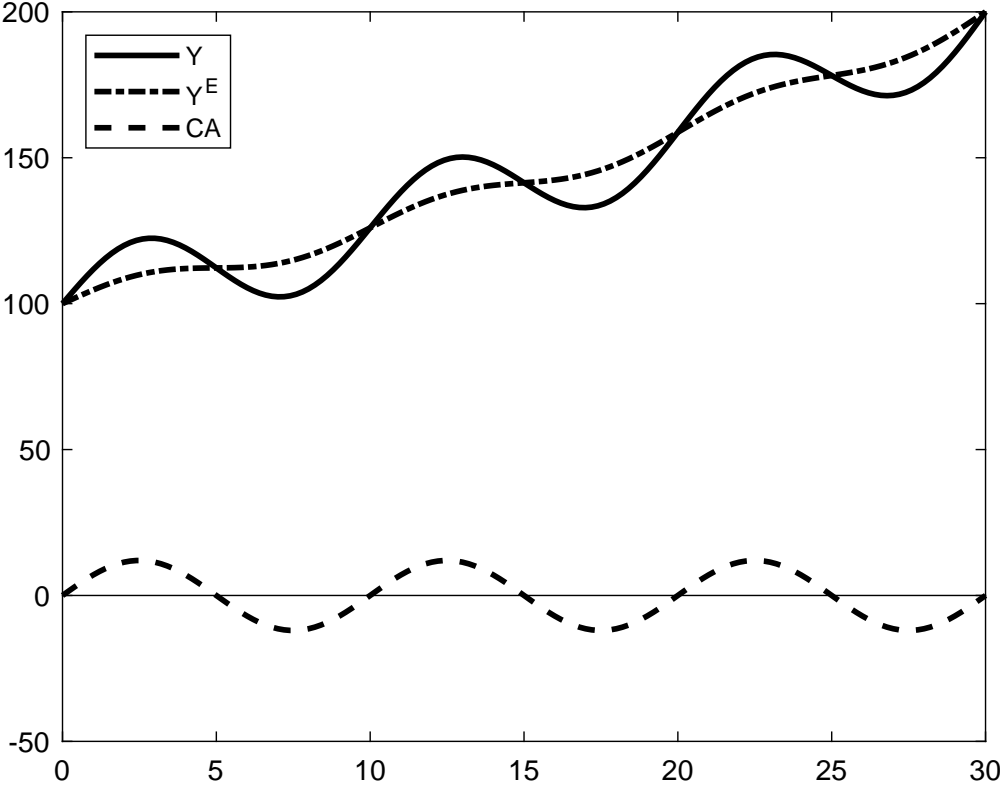


Figure 2: Dynamics of  $Y$ ,  $Y^E$  and  $CA$ .

1. (a) Which variables do  $Y$ ,  $Y^E$  and  $CA$ , respectively, represent in figures 1 and 2? [1]
- (b) State the formula that relates  $Y$ ,  $Y^E$  and  $CA$ . [1]
- (c) Which of the two figures 1 and 2 illustrates the predictions of the intertemporal approach to the current account regarding the dynamic evolution of  $Y$ ,  $Y^E$  and  $CA$  best? Explain your answer briefly. [3]
- (d) According to the empirical evidence, which of the two figures 1 and 2 illustrates the observed joint dynamic behaviour of  $Y$ ,  $Y^E$  and  $CA$  best, particularly in times when countries' current account balances deteriorate quickly? Explain your answer briefly. [3]

Total of question 1: [8]

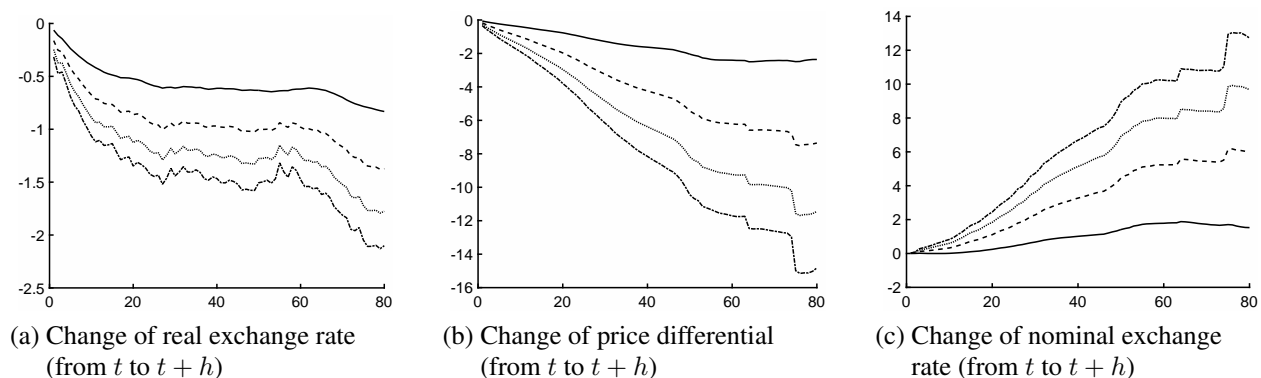


Figure 3: Convergence of international food prices. Estimations of the reactions of the real exchange rate,  $q_t$ , the price level differential,  $p_t^H - p_t^F$ , and the nominal exchange rate,  $s_t$ , based on food prices following a deviation of the real exchange rate from purchasing power parity are shown in panels a, b and c, respectively. The horizontal axis shows the horizon,  $h$ , in quarters. The four lines correspond to an initial real exchange rate deviation of 50% in the case of the solid line, of 100% in the case of the dashed line, of 150% in the case of the dotted line and of 200% in the case of the dash-dotted line. All variables are expressed as logarithms to the base 2. Note that a 50% deviation of the real exchange rate from PPP corresponds to a base 2 logarithm of 0.58 ( $= \log_2(1.5)$ ), a 100% deviation to a base 2 logarithm of 1.00 ( $= \log_2(2.0)$ ), a 150% deviation to a base 2 logarithm of 1.32 ( $= \log_2(2.5)$ ) and a 200% deviation to a base 2 logarithm of 1.58 ( $= \log_2(3.0)$ ).

2. (a) State the mathematical formula representing the purchasing power parity (PPP) hypothesis. [1]
- (b) Which economic argument is normally used to justify the PPP hypothesis? [1]
- (c) Very briefly, what is the empirical evidence regarding the PPP hypothesis? If there is an adjustment towards PPP, is it fast or slow? [2]
- (d) Figure 3 shows estimations of the reactions of the real exchange rate,  $q_t$ , the price level differential,  $p_t^H - p_t^F$ , and the nominal exchange rate,  $s_t$ , over a course of 20 years (80 quarters) to an initial overvaluation of the real exchange rate. The real exchange rate and the price level differential are based on food prices (traded good). Based on the empirical evidence of figure 3, why may it be necessary to reconsider the PPP hypothesis? In other words, is there something the theory of PPP overlooks? [4]

Total of question 2: [8]

3. Suppose a Spanish firm exports cars worth 10 monetary units to France.  
In the published balance of payments, this would be recorded as follows:

Category	Subcategory	Entry
CA	Trade balance (goods and services)	+10
	Income (from work and capital)	
	Net unilateral transfers	
KA	Capital transfers	
	Non-produced, non-financial assets	
FA	Direct investment	- 10
	Portfolio investment	
	Other investment	
	Official reserves	
EO		
Balance		0

However, in the analytical balance of payments that is used in the currency flow model, the transaction is recorded as follows:

Category	Subcategory	Entry
$CA + KA$		+10
$\Delta z_t^{\text{HF}}$	$\Delta e_t^{\text{HF}}$	+10
	$\Delta b_t^{\text{HF}}$	
	$\Delta m_t^{\text{HF}}$	
	$\Delta b_t^{\text{HF}}$	
$CA + KA - \Delta z_t^{\text{HF}}$		0

In the following questions, four international transactions are presented. Based on the example above, fill in the missing data in the balances of payments of Spain of each question.

- (a) A Spanish resident buys German government bonds worth 100 monetary units from an Italian resident. [2]

Category	Subcategory	Entry
CA	Trade balance (goods and services)	
	Income (from work and capital)	
	Net unilateral transfers	
KA	Capital transfers	
	Non-produced, non-financial assets	
FA	Direct investment	
	Portfolio investment	
	Other investment	
	Official reserves	
EO		
Balance		

Category	Subcategory	Entry
$CA + KA$		
$\Delta z_t^{\text{HF}}$	$\Delta e_t^{\text{HF}}$	
	$\Delta b_t^{\text{HF}}$	
	$\Delta m_t^{\text{HF}}$	
	$\Delta b_t^{\overline{\text{HF}}}$	
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$CA + KA - \Delta z_t^{\text{HF}}$		

- (b) The Spanish resident receives interest payments worth 5 monetary units from the German government. [2]

Category	Subcategory	Entry
CA	Trade balance (goods and services)	
	Income (from work and capital)	
	Net unilateral transfers	
KA	Capital transfers	
	Non-produced, non-financial assets	
FA	Direct investment	
	Portfolio investment	
	Other investment	
	Official reserves	
EO		
<hr/>		
Balance		

Category	Subcategory	Entry
$CA + KA$		
$\Delta z_t^{\text{HF}}$	$\Delta e_t^{\text{HF}}$	
	$\Delta b_t^{\text{HF}}$	
	$\Delta m_t^{\text{HF}}$	
	$\Delta b_t^{\overline{\text{HF}}}$	
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$CA + KA - \Delta z_t^{\text{HF}}$		

- (c) A retired British citizen with a wealth of 200 monetary units (consisting exclusively of British government bonds) moves from London to Valencia with the intention to spend the rest of their life there. [2]

Category	Subcategory	Entry	
CA	Trade balance (goods and services)		
	Income (from work and capital)		
	Net unilateral transfers		
KA	Capital transfers		
	Non-produced, non-financial assets		
FA	Direct investment		
	Portfolio investment		
	Other investment		
	Official reserves		
EO			
Balance			
	Category	Subcategory	Entry
	$CA + KA$		
	$\Delta z_t^{\text{HF}}$	$\Delta e_t^{\text{HF}}$	
		$\Delta b_t^{\text{HF}}$	
		$\Delta m_t^{\text{HF}}$	
		$\Delta b_t^{\text{HF}}$	
	$CA + KA - \Delta z_t^{\text{HF}}$		

- (d) The Bank of Spain sells US Treasury bonds worth 400 monetary units to a Japanese bank. [2]

Category	Subcategory	Entry
CA	Trade balance (goods and services)	
	Income (from work and capital)	
	Net unilateral transfers	
KA	Capital transfers	
	Non-produced, non-financial assets	
FA	Direct investment	
	Portfolio investment	
	Other investment	
	Official reserves	
EO		
Balance		



Category	Subcategory	Entry
$CA + KA$		
$\Delta z_t^{\text{HF}}$	$\Delta e_t^{\text{HF}}$	
	$\Delta b_t^{\text{HF}}$	
	$\Delta m_t^{\text{HF}}$	
	$\Delta b_t^{\bar{\text{HF}}}$	
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$CA + KA - \Delta z_t^{\text{HF}}$		

Total of question 3: [8]

4. (a) Let  $W_t^H$  be total domestic wealth and  $\Delta W_t$  its change. How is  $\Delta W_t$  related to  $K_t$  and  $z_t^{HF}$ . [1]
- (b) State the relationship between  $I_t$  and  $K_t$ . [1]
- (c) State the relationship between  $FA$  and  $\Delta z_t^{HF}$ . [1]
- (d) State the relationship between net external wealth,  $NEW$ , and net foreign liabilities,  $NFL$ . [1]
- (e) Define the net capital inflows of a country in terms of  $\Delta z_t^{HF}$ ,  $\Delta m_t^{HF}$  and  $\Delta b_t^{\overline{HF}}$ ? [1]
- (f) How are  $GNDI$ ,  $Y$ , and  $GDP$ ,  $Y^P$ , related? [1]
- (g) State the relationship between a bank's leverage coefficient,  $LC$ , its assets,  $A$ , and its other liabilities,  $OL$ ? [1]
- (h) State five examples of financial crises. [1]

Total of question 4: [8]

5. Consider the following nominal exchange rate equation:

$$s_t = x_t + y_t, \quad (1)$$

where

$$x_t = -(p_t^H - p_t^F), \quad (2)$$

$$y_t = \xi m_t^{HF}. \quad (3)$$

- (a) What is the economic intuition of the first term of the nominal exchange rate equation,  $x_t$ ? [2]
- (b) What are the main determinants of  $x_t$  according to the monetary model of exchange rate determination? [1]
- (c) What is the economic intuition of the second term of the nominal exchange rate equation,  $y_t$ ? [2]
- (d) What are the main determinants of  $y_t$  according to the currency flow model of exchange rate determination? [1]
- (e) What level does the net purchase of official reserves,  $\Delta b_t^{HF}$ , have to take if the domestic central bank decides to keep the nominal exchange rate fixed (that is, to maintain a nominal exchange rate peg)? [2]

Total of question 5: [8]

