Public Affairs 854   Menzie D. Chinn
Spring 2013   Social Sciences 7418
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Problem Set 3

Due in Lecture on Wednesday, April 17th. $\boxed{"Box-in"}$ your answers to the algebraic questions.

1. Policy under Fixed Exchange Rates in the IS-LM-BP=0 model

Suppose the economy is given by the following set of equations.

(1) $Y = \overline{\alpha}[\overline{A} + \overline{EXP} - \overline{IMP} + (n+v)q - bi]$ <IS curve>

(1') $\boxed{i = \dfrac{\overline{A} + \overline{EXP} - \overline{IMP} + (n+v)q}{b} - \left(\dfrac{1 - c(1-t) + m}{b}\right)Y}$ <IS curve>

Where $\overline{A} \equiv \overline{CO} - b\overline{TA} + b\overline{FT} + \overline{IN} + \overline{GO}$

(2) $\boxed{i = -\left(\dfrac{1}{h}\right)\left(\dfrac{\overline{M}}{P}\right) + \left(\dfrac{k}{h}\right)Y}$ <LM curve>

(3) $\boxed{i = -\left(\dfrac{1}{\kappa}\right)[(\overline{EXP} - \overline{IMP} + \overline{KA}) + (n+v)q] + \overline{i}^* + \left(\dfrac{m}{\kappa}\right)Y}$ <BP=0 curve>

　　　1.1 Draw a graph of initial equilibrium, where the goods and money markets are in
　　　　　equilibrium, as is the balance of payments. Assume that $m/\kappa > k/h$.
　　　1.2 Show what happens if the government decreases government spending by ΔGO, both
　　　　　immediately, and over time in the absence of central bank sterilization. Note, the
　　　　　money base changes by an amount equal to the change in foreign exchange reserves,

(4) $\Delta MB = \Delta Res = BP = -ORT$

　　　1.3 Answer 1.2, assuming the central bank sterilizes changes in official reserves. At the
　　　　　new equilibrium, what is true about (i) the level of output; (ii) the level of investment;
　　　　　(iii) the real exchange rate; and (iv) the trade balance?
　　　1.4 Redraw 1.1, and show the impact of a monetary contraction, both immediately and
　　　　　over time. Assume over time, capital flows are sterilized.
　　　1.5 Explain why the process you lay out in 1.4 occurs.
　　　1.6 Answer 1.4 if capital flows are *not* sterilized.

2. Policy under Floating Exchange Rates in the IS-LM-BP=0 model

Suppose the exchange rate is floating.

> 2.1 Assume the economy described above is under a floating exchange rate regime. Show graphically what happens if the government decreases government spendings.
> 2.2 Explain your answer to 2.1.
> 2.3 Now examine a monetary contraction from initial equilibrium, carefully distinguishing between initial impact, and the effect over time.
> 2.4 Explain why monetary policy has a larger effect in this open economy as opposed to that in a closed economy.
> 2.5 Answer 2.1, assuming $\kappa = \infty$.

3. Expected Devaluation under Fixed Exchange Rates in IS-LM-BP=0

Suppose equation (4) is given by:

(4')
$$i = -\left(\frac{1}{\kappa}\right)[(\overline{EXP} - \overline{IMP} + \overline{KA}) + (n+v)q] + \bar{i}^* + \Delta s_{+1}^e + \left(\frac{m}{\kappa}\right)Y$$

> 3.1 Suppose the expected change in the exchange rate goes from zero to 50% chance of no change, and 50% chance of 20% devaluation. Show what happens in an IS-LM-BP=0 graph, assuming high, but not infinite capital mobility.
> 3.2 Now assume capital mobility is infinite; repeat question 3.1.

4. Purchasing power parity.

> Consider absolute purchasing power parity, in logs (i.e., where lowercase letters denote logged values of uppercase letters):
> $s_t = p_t - p_t^*$
> 4.1 Explain what happens to the exchange rate if the foreign price level rises by 10%.
> 4.2 Suppose only *relative* PPP holds, $s_t = p_t - p_t^* - \kappa$. Answer again 1.1.
> 4.3 If relative PPP holds, what must be true when US inflation is -3% and foreign inflation is 2%?

5. Using real-world data to evaluate PPP and UIP

Consider the two tables drawn from the *Economist*, April 5th edition, on the attached pages. Answer these questions using equations, and show your work.

> 5.1 Using the 3 month interest rates, and assuming UIP holds, calculate the expected change in the dollar/pound exchange rate over the next three months. Be sure to state what the rate will be, in *annualized* terms, and what will be the actual percentage change in the dollar/pound exchange rate. Show your work.

5.2 Using 10 year bonds, calculate what the implied change in the dollar/pound exchange rate is, over the next ten years.

5.3 Given the empirical evidence on the relationship between exchange rate changes and interest differentials provided in the table in the handout on CIP and UIP, what do you expect to happen to the dollar/pound rate over the next three months, and over the next ten years. Explain.

5.4 Given the inflation rates over the past year, what should have been the rate of change in the US dollar/pound exchange rate if relative purchasing power parity held?

5.5 Interpret the April 5th *Economist* poll of expected inflation rate for 2013 as the expected change from December 2012 to December 2013. What is the expected change in the US dollar/pound over that period if relative PPP holds?

The Economist poll of forecasters, April averages (previous month's, if changed)

	Real GDP, % change Low/high range		Real GDP, % change average		Consumer prices % change		Current account % of GDP	
	2013	2014	2013	2014	2013	2014	2013	2014
Australia	2.3/3.0	2.7/3.8	2.6 (2.8)	3.1	2.6	2.7	-3.8	-3.9 (-3.7)
Belgium	-0.3/0.5	0.3/1.6	0.1 (0.2)	1.1	1.6 (1.9)	1.6 (1.9)	-0.5 (-0.7)	-0.3 (-0.4)
Britain	0.4/1.3	0.7/2.2	0.7 (0.8)	1.5	2.9 (2.7)	2.6 (2.4)	-3.0 (-2.5)	-2.4 (-2.2)
Canada	1.4/2.2	2.1/2.9	1.7 (1.9)	2.4 (2.3)	1.5 (1.7)	1.9 (2.0)	-3.3 (-3.5)	-2.8 (-3.1)
France	-0.7/0.5	0.2/1.5	-0.2 (0.1)	0.8	1.3 (1.6)	1.7 (1.8)	-1.8 (-1.7)	-1.7 (-1.5)
Germany	0.3/1.0	0.8/2.5	0.7	1.6 (1.5)	1.5 (2.0)	1.9 (2.0)	6.0 (5.3)	5.6 (4.9)
Italy	-2.1/-1.0	-1.4/0.8	-1.5 (-1.1)	0.2 (0.4)	1.8 (2.1)	1.6 (1.8)	0.1 (-0.7)	0.2 (-0.3)
Japan	0.6/2.0	0.5/2.3	1.3 (1.0)	1.3 (1.4)	0.1	1.6 (1.3)	0.9	1.5 (1.2)
Netherlands	-1.0/-0.4	nil/1.6	-0.6	0.8 (0.7)	2.5 (2.3)	1.9 (2.1)	8.5	8.4 (8.5)
Spain	-2.2/-1.2	-2.1/0.8	-1.6	-0.1	2.0 (2.3)	1.1 (1.2)	0.4 (-0.8)	1.1 (nil)
Sweden	1.0/2.0	1.3/3.1	1.4 (1.3)	2.3	0.6 (0.8)	1.7 (1.9)	7.2 (7.0)	6.5 (6.4)
Switzerland	0.7/1.8	1.1/2.3	1.2 (1.1)	1.6	0.2	0.7	11.0 (11.5)	10.7 (10.1)
United States	1.6/2.8	2.1/3.2	2.1 (2.0)	2.7 (2.6)	1.9 (1.8)	2.0	-2.8 (-2.6)	-2.8 (-2.5)
Euro Area	-0.6/-0.3	-0.3/1.5	-0.5 (-0.2)	0.9 (0.8)	1.7 (1.9)	1.6 (1.8)	1.6 (1.2)	1.7 (1.4)

Sources: Bank of America, BNP Paribas, Citigroup, Commerzbank, Decision Economics, Deutsche Bank, Economist Intelligence Unit, Goldman Sachs, HSBC Securities, ING, JPMorgan Chase, KBC Bank, Morgan Stanley, RBC, RBS, Schroders, Scotia Capital, Société Générale, Standard Chartered, UBS

Trade, exchange rates, budget balances and interest rates

	Trade balance latest 12 months, $bn	Current-account balance latest 12 months, $bn	Current-account balance % of GDP 2013†	Currency units, per $ Apr 3rd	Currency units, per $ year ago	Budget balance % of GDP 2013†	Interest rates 3-month latest	Interest rates 10-year gov't bonds, latest
United States	-730.2 Jan	-475.0 Q4	-2.8	-	-	-5.4	0.28	1.81
China	+280.3 Feb	+193.1 Q4	+1.8	6.20	6.30	-2.0	3.88	3.26§§
Japan	-64.7 Jan	+60.8 Jan	+0.9	93.5	82.3	-9.0	0.16	0.56
Britain	-169.1 Jan	-91.5 Q4	-3.0	0.66	0.63	-7.8	0.49	1.84
Canada	-12.3 Jan	-67.0 Q4	-3.3	1.02	0.99	-3.2	1.18	1.83
Euro Area	+110.2 Jan	+153.2 Jan	+1.6	0.78	0.75	-2.7	0.21	1.28
Austria	-10.9 Dec	+7.1 Q4	+2.0	0.78	0.75	-2.4	0.21	1.67
Belgium	+10.0 Jan	-6.6 Dec	-0.5	0.78	0.75	-2.5	0.21	2.15
France	-87.2 Jan	-64.9 Jan	-1.8	0.78	0.75	-3.5	0.21	1.98
Germany	+243.0 Jan	+239.5 Jan	+6.0	0.78	0.75	-0.3	0.21	1.28
Greece	-25.6 Jan	-7.1 Jan	-0.8	0.78	0.75	-5.0	0.21	12.1
Italy	+17.6 Jan	-9.5 Jan	+0.1	0.78	0.75	-2.3	0.21	4.60
Netherlands	+53.9 Jan	+77.0 Q4	+8.5	0.78	0.75	-3.7	0.21	1.74
Spain	-39.6 Jan	-12.3 Jan	+0.4	0.78	0.75	-6.6	0.21	4.99
Czech Republic	+15.9 Jan	-4.7 Q4	-2.2	20.2	18.4	-3.2	0.47	1.86
Denmark	+12.2 Jan	+16.7 Jan	+5.0	5.81	5.58	-2.5	0.26	1.05
Hungary	+8.7 Jan	+2.0 Q4	-0.8	235	220	-3.1	4.89	6.11
Norway	+69.5 Feb	+71.3 Q4	+13.2	5.81	5.68	+14.5	1.85	2.11
Poland	-11.7 Jan	-16.8 Jan	-3.1	3.26	3.10	-3.3	3.18	3.85
Russia	+190.7 Jan	+63.5 Q1	+1.9	31.2	29.2	-0.5	7.49	7.28
Sweden	+9.9 Feb	+37.6 Q4	+7.2	6.47	6.59	-0.3	1.24	1.86
Switzerland	+26.3 Feb	+85.8 Q4	+11.0	0.95	0.90	+0.3	0.02	0.72
Turkey	-85.2 Feb	-46.8 Jan	-6.3	1.80	1.78	-2.5	6.45	7.27
Australia	+6.1 Feb	-56.5 Q4	-3.8	0.96	0.97	-0.7	3.18	3.44
Hong Kong	-62.5 Feb	+2.9 Q4	+6.6	7.76	7.76	+2.3	0.50	1.17
India	-196.0 Feb	-93.4 Q4	-4.1	54.3	50.7	-5.0	7.85	7.97†††
Indonesia	-4.0 Feb	-24.2 Q4	-2.9	9,737	9,130	-1.4	4.90	na
Malaysia	+29.1 Jan	+19.5 Q4	+6.2	3.09	3.05	-4.1	3.11	3.47
Pakistan	-19.8 Feb	-2.0 Q4	-0.9	98.3	90.6	-6.4	9.49	11.9†††
Singapore	+26.9 Feb	+51.4 Q4	+19.5	1.24	1.25	+0.7	0.26	1.52
South Korea	+32.9 Mar	+48.6 Feb	+4.4	1,118	1,122	+2.6	2.73	2.78
Taiwan	+12.4 Feb	+49.6 Q4	+10.2	29.9	29.5	-1.7	0.94	1.32
Thailand	-24.5 Feb	+2.7 Q4	+1.6	29.4	30.8	-2.9	2.48	3.69
Argentina	+11.6 Feb	+0.5 Q4	+0.6	5.12	4.38	-2.4	8.48‡	na
Brazil	+11.9 Mar	-63.5 Feb	-3.4	2.02	1.82	-1.9	7.16	9.72
Chile	+2.1 Feb	-9.5 Q4	-3.3	473	482	+0.9	0.63	na
Colombia	+1.2 Jan	-11.4 Q4	-3.5	1,821	1,767	-0.7	4.55	5.09
Mexico	-2.8 Feb	-9.2 Q4	-1.0	12.3	12.7	-1.8	4.35	7.75
Venezuela	-41.6 Oct	+11.0 Q4	+5.0	6.29	4.29	-7.0	14.5	na
Egypt	-39.1 Jan	-6.9 Q4	-2.0	6.81	6.04	-11.7	13.0	na
Israel	-16.4 Feb	-0.2 Q4	-0.2	3.61	3.72	-3.7	1.76	3.90
Saudi Arabia	+327.8 2011	+173.6 Q3	+13.3	3.75	3.75	+4.3	0.99	na
South Africa	-15.1 Feb	-24.1 Q4	-5.3	9.21	7.69	-4.6	5.13	6.50
Estonia	-1.5 Jan	-0.3 Jan	-3.0	0.78	0.75	-2.0	0.21	na
Finland	-3.4 Jan	-4.9 Jan	-1.5	0.78	0.75	-1.1	0.21	1.53
Iceland	+0.7 Feb	-0.7 Q4	-2.4	123	126	-2.6	6.20	na
Ireland	+54.0 Jan	+10.3 Q4	+3.2	0.78	0.75	-7.8	0.21	4.11
Latvia	-3.3 Jan	-0.4 Jan	-2.3	0.55	0.53	-1.7	0.45	na
Lithuania	-2.6 Jan	nil Q4	-1.5	2.69	2.59	-3.3	0.47	4.20
Luxembourg	-10.4 Jan	+3.2 Q4	+3.4	0.78	0.75	-1.3	0.21	na
New Zealand	-0.9 Feb	-8.5 Q4	-5.6	1.19	1.21	-2.4	2.65	3.56
Peru	+3.4 Jan	-7.1 Q4	-3.5	2.59	2.67	+1.3	4.50	na
Philippines	-9.4 Jan	+7.2 Dec	+3.8	40.9	42.7	-1.8	0.38	3.30
Portugal	-13.2 Jan	-2.0 Jan	+0.2	0.78	0.75	-5.5	0.21	6.41
Slovakia	+4.7 Jan	+2.1 Jan	+1.4	0.78	0.75	-3.2	0.21	3.38
Slovenia	nil Dec	+1.0 Jan	+3.8	0.78	0.75	-3.9	0.21	na
Ukraine	-15.8 Jan	-14.8 Q4	-6.8	8.14	8.03	-4.4	7.50	na
Vietnam	+2.1 Mar	+0.2 2011	-0.8	20,935	20,840	-4.5	7.50	9.27

Source: Haver Analytics. †The Economist poll or Economist Intelligence Unit estimate/forecast. ‡New Series. §§5-year yield
†††Dollar-denominated bonds.

Output, prices and jobs
% change on year ago

	Gross domestic product				Industrial production	Consumer prices			Unemployment rate, %
	latest	qtr*	2013†	2014†	latest	latest	year ago	2013†	
United States	+1.7 Q4	+0.4	+2.1	+2.7	+2.5 Feb	+2.0 Feb	+2.9	+1.9	7.7 Feb
China	+7.9 Q4	+8.2	+8.5	+7.8	+9.9 Feb	+3.2 Feb	+3.2	+4.3	4.1 Q4§
Japan	+0.5 Q4	+0.2	+1.3	+1.3	-11.0 Feb	-0.6 Feb	+0.3	+0.1	4.3 Feb
Britain	+0.2 Q4	-1.2	+0.7	+1.5	-3.0 Jan	+2.8 Feb	+3.4	+2.9	7.8 Dec††
Canada	+1.1 Q4	+0.6	+1.7	+2.4	-1.1 Jan	+1.2 Feb	+2.6	+1.5	7.0 Feb
Euro Area	-0.9 Q4	-2.3	-0.5	+0.9	-1.3 Jan	+1.7 Mar	+2.7	+1.7	12.0 Feb
Austria	+0.7 Q4	+0.2	+0.7	+1.6	+2.2 Jan	+2.5 Mar	+2.6	+2.2	4.8 Feb
Belgium	-0.4 Q4	-0.5	+0.1	+1.1	-0.9 Dec	+1.1 Mar	+3.4	+1.6	8.1 Feb
France	-0.3 Q4	-1.2	-0.2	+0.8	-3.5 Jan	+1.0 Feb	+2.3	+1.3	10.8 Feb
Germany	+0.4 Q4	-2.4	+0.7	+1.6	-1.3 Jan	+1.4 Mar	+2.2	+1.5	6.9 Mar
Greece	-5.7 Q4	na	-5.0	-1.5	-4.9 Jan	+0.1 Feb	+2.1	nil	26.4 Dec
Italy	-2.8 Q4	-3.7	-1.5	+0.2	-3.6 Jan	+1.7 Mar	+3.3	+1.8	11.6 Feb
Netherlands	-1.2 Q4	-1.7	-0.6	+0.8	-3.0 Jan	+3.0 Feb	+2.5	+2.5	7.7 Feb
Spain	-1.8 Q4	-3.2	-1.6	-0.1	-3.6 Jan	+2.8 Feb	+2.0	+2.0	26.3 Feb
Czech Republic	-1.4 Q4	-0.7	+0.1	+1.8	-4.1 Jan	+1.7 Feb	+3.7	+2.1	8.1 Feb§
Denmark	-0.6 Q4	-2.9	+0.5	+1.5	+4.7 Jan	+1.2 Feb	+2.8	+1.6	6.0 Feb
Hungary	-2.7 Q4	-3.4	-0.5	+1.3	-1.4 Jan	+2.8 Feb	+5.9	+4.5	11.6 Feb§††
Norway	+2.1 Q4	+1.8	+2.3	+3.7	-5.7 Jan	+1.0 Feb	+1.2	+1.8	3.6 Jan‡‡
Poland	+1.1 Q4	na	+1.4	+2.7	-2.1 Feb	+1.3 Feb	+4.3	+2.1	14.4 Feb§
Russia	+2.1 Q4	na	+3.3	+3.7	-2.3 Feb	+7.3 Feb	+3.7	+6.3	5.8 Feb§
Sweden	+1.5 Q4	+0.1	+1.4	+2.3	-7.8 Jan	-0.2 Feb	+1.9	+0.6	8.5 Feb§
Switzerland	+1.4 Q4	+1.0	+1.2	+1.6	+2.2 Q3	-0.3 Feb	-0.9	+0.2	3.1 Feb
Turkey	+1.4 Q4	na	+3.8	+5.1	+2.1 Jan	+7.3 Mar	+10.4	+6.8	10.1 Dec§
Australia	+3.1 Q4	+2.4	+2.6	+3.1	+4.8 Q4	+2.2 Q4	+3.0	+2.6	5.4 Feb
Hong Kong	+2.5 Q4	+4.9	+3.2	+4.0	+1.3 Q4	+4.4 Feb	+4.7	+4.3	3.4 Feb‡‡
India	+4.5 Q4	+8.6	+6.5	+7.3	+2.4 Jan	+10.9 Mar	+8.8	+8.8	9.9 2012
Indonesia	+6.1 Q4	na	+6.4	+6.5	+11.5 Feb	+5.9 Mar	+4.0	+5.5	6.1 Q3§
Malaysia	+6.4 Q4	na	+4.6	+5.3	+4.5 Jan	+1.5 Feb	+2.2	+2.2	3.3 Jan§
Pakistan	+4.2 2012**	na	+4.0	+4.7	+4.7 Jan	+6.6 Mar	+10.8	+7.2	6.0 2011
Singapore	+1.5 Q4	+3.3	+2.3	+3.7	-16.5 Feb	+4.9 Feb	+4.6	+3.8	1.8 Q4
South Korea	+1.4 Q4	+1.1	+2.8	+3.8	-9.3 Feb	+1.3 Mar	+2.6	+2.3	4.0 Feb§
Taiwan	+3.7 Q4	+7.3	+3.2	+3.9	-11.4 Feb	+3.0 Feb	+0.3	+1.5	4.2 Feb
Thailand	+19.5 Q4	+15.0	+4.4	+4.6	-1.2 Feb	+2.7 Mar	+3.4	+3.1	0.8 Jan§
Argentina	+2.1 Q4	+5.2	+3.5	+3.3	-4.4 Feb	— ***	—	—	6.9 Q4§
Brazil	+1.4 Q4	+2.2	+3.5	+3.8	-3.2 Feb	+6.3 Feb	+5.8	+6.1	5.6 Feb§
Chile	+5.7 Q4	+6.1	+4.8	+4.7	+1.7 Feb	+1.3 Feb	+4.4	+2.3	6.2 Feb§‡‡
Colombia	+3.1 Q4	+7.4	+4.6	+4.7	-1.2 Jan	+1.8 Feb	+3.6	+2.0	11.8 Feb§
Mexico	+3.2 Q4	+3.1	+3.7	+3.8	+1.7 Jan	+3.6 Feb	+3.9	+3.7	4.8 Feb
Venezuela	+5.5 Q4	+4.2	+0.4	+3.5	-2.2 Dec	+22.8 Feb	+25.3	+31.1	7.6 Feb§
Egypt	+4.9 Q4	na	+2.4	+3.6	+7.2 Feb	+8.3 Feb	+9.2	+8.5	13.0 Q4§
Israel	+2.9 Q4	+2.4	+2.7	+3.9	+5.1 Jan	+1.4 Feb	+1.7	+1.5	7.1 Q4
Saudi Arabia	+6.8 2012	na	+4.1	+4.9	na	+3.9 Feb	+4.8	+4.4	5.5 2012
South Africa	+2.5 Q4	+2.1	+2.8	+3.8	+3.6 Jan	+5.9 Feb	+6.1	+4.8	24.9 Q4§
Estonia	+3.7 Q4	+3.7	+2.6	+3.0	+1.4 Feb	+3.7 Feb	+4.2	+4.0	9.3 Q4§
Finland	-1.5 Q4	-2.1	nil	+1.3	-4.8 Jan	+1.7 Feb	+3.1	+2.4	8.7 Feb§
Iceland	+1.4 Q4	+2.0	+1.7	+2.1	na	+4.0 Mar	+6.4	+4.1	5.5 Feb§
Ireland	nil Q4	-0.2	+0.5	+1.4	-3.1 Jan	+1.1 Feb	+2.1	+1.0	14.1 Feb
Latvia	+5.1 Q4	+0.1	+3.7	+4.0	-2.0 Feb	+0.3 Feb	+3.4	+1.6	13.8 Q4§
Lithuania	+4.1 Q4	+2.8	+2.5	+3.0	+1.7 Feb	+2.2 Feb	+3.7	+2.4	12.4 Feb§
Luxembourg	+1.6 Q4	+6.6	+0.3	+1.2	-6.8 Jan	+2.0 Feb	+2.7	+2.2	6.9 Feb§
New Zealand	+3.3 Q4	+5.5	+2.1	+3.3	+2.4 Q4	+0.9 Q4	+1.8	+1.6	6.9 Q4
Peru	+5.9 Q4	+1.4	+6.1	+5.9	+3.1 Jan	+2.6 Mar	+4.2	+2.5	6.5 Feb§
Philippines	+6.8 Q4	+6.1	+5.9	+6.5	+18.7 Jan	+3.4 Feb	+2.7	+3.9	7.1 Q1§
Portugal	-3.8 Q4	-7.1	-3.0	-0.6	-0.5 Feb	nil Feb	+3.6	+0.2	16.9 Q4§
Slovakia	+0.7 Q4	+1.1	+1.3	+2.8	+3.3 Jan	+2.2 Feb	+3.8	+2.4	14.7 Feb§
Slovenia	-3.0 Q4	-3.8	-0.8	+0.5	+0.6 Jan	+1.9 Mar	+2.3	+2.5	13.6 Jan§
Ukraine	-2.5 Q4	-2.7	+1.9	+3.3	-8.9 Feb	-0.5 Feb	+3.0	+7.5	2.1 Feb§
Vietnam	+5.0 2012	na	+5.2	+5.9	+5.6 Mar	+6.6 Mar	+14.2	+7.6	3.6 2011

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. **Year ending June. ††Latest 3 months. ‡‡3-month moving average. ***Official number not reliable; The State Street PriceStats Inflation Index, February 25.71%; year ago 24.02%