

## Final Examination

Revised: December 21, 2013

*You have 120 minutes to complete this exam. Please answer each question in the space provided and show all of your work. You may consult one page of notes and a calculator, but devices capable of wireless transmission are prohibited.*

*I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, or tolerate those who do.*

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(Name and Signature)

	2010	2011	2012	2013
Official exchange rate (pesos per USD)	3.90	4.11	4.54	5.46
Inflation (%)	22.9	24.4	25.3	20.6
Foreign currency reserves (USD billions)	52.2	46.4	43.2	32.2
Real GDP growth (%)	9.2	8.9	1.9	5.2
Govt revenue (% of GDP)	24.3	23.6	25.4	27.3
Govt spending (% of GDP)	24.1	25.3	28.0	30.5
Public sector surplus (% of GDP)	0.2	-1.7	-2.6	-3.2
Primary balance (% of GDP)	1.7	0.3	-0.2	-0.8
Govt debt (yearend, % of GDP)			44.8	
Interest rate paid on debt (%)	4.0	5.5	6.7	6.5
Money market interest rate (%)	9.1	10.0	9.8	12.7

Table 1: Economic indicators for Argentina. Source: EIU.

1. *Don't Cry for Me Argentina (40 points).* Argentina is a seemingly endless source of entertainment to economists, yet its economy has done well in the recent past. GDP growth fell to 0.9% in 2009, during the global financial crisis, but averaged over 9% the next two years. Most analysts attribute this success to favorable commodity prices and strong global demand for Argentina's commodity exports. At the same time, the government of President Cristina Fernandez de Kirchner continues to adopt policies that befuddle outside observers, including: taking

over private pension funds, restricting imports and purchases of foreign currency, attacking the press, nationalizing the Spanish-owned oil company YPF, imposing price controls on electricity, natural gas, and public transportation, and subsidizing energy consumption.


The Economist Intelligence Unit reports:

- A US court case may eventually leave Argentina with the unpalatable choice of repaying the “holdouts” (creditors that did not participate in the 2005 or 2010 restructurings) in full — something that it has sworn never to do — or falling into technical default to avoid repaying current creditors in a US jurisdiction.
- According to official data, consumer price inflation remains among the highest in emerging markets, at 10.5% in April 2013. However, the official data are widely discredited, and we are now using estimates produced by PriceStats, which estimates that inflation in 2012 was 25%.
- Double-digit inflation has generated real peso appreciation. Foreign-exchange controls have failed to prevent an erosion of the reserves cushion, heightening the risk of an eventual devaluation.
- The Argentine peso floats in principle, but the central bank intervenes to limit the peso’s depreciation. In addition, foreign currency transactions are subject to a variety of controls. For the past couple of years, the government has been gradually tightening the ‘clamp,’ an unofficial policy of discouraging purchases of dollars. As a result, the peso’s official decline has been modest, but the unofficial “blue market” price of the peso is considerably lower.
- The (low) banking sector risk rating reflects weak economic activity, expansionary monetary policies that contribute to credit risk, high risk of exchange-rate and interest-rate volatility, and increased currency convertibility risk.
- The ruling party fared badly in the October midterm election, leaving the president without enough support in Congress to change the constitution and run for re-election. Focus will now shift rapidly to the 2015 presidential race. The president remains alienated from almost all of the country’s most influential groups, including the unions, the media, the Catholic Church and the traditional leaders of the Peronist party. In this context, risks to political stability will be high. An additional risk to stability is the president’s health.

The question is what happens next: Could another crisis be on the way, or has Argentina put its problematic past to rest? Use the information provided, and your own experience and good judgement, to assess the risks to the Argentina economy over the next 2-3 years.

- (a) By “real appreciation” we mean an increase in the price of local goods relative to foreign goods — what is sometimes called a decline in the real exchange rate. Use the numbers in the table to demonstrate (or disprove) real appreciation of the peso. (10 points)

- (b) Why do you think the central bank's foreign exchange reserves have declined? (5 points)
- (c) How do you see government debt evolving? Compute, in particular, the ratio of government debt to GDP at year-end 2013. What factors contribute the most to the change in the ratio? (10 points)
- (d) Overall, how would you rate the risk of a macroeconomic crisis in Argentina? What are the biggest sources of concern? (15 points)

**Solution:** Answers follow. See the spreadsheet for calculations in (a) and (c) (download this pdf file, open it with the Adobe Reader or the equivalent, and click on the pushpin): 

- (a) One way to think about this (not the only one) is with the real exchange rate  $RER = eP^*/P$ , where  $e$  is the exchange rate,  $P$  is the price of Argentine goods, and  $P^*$  is the price of American goods. So how is the real exchange rate changing? Inflation is the rate of increase in  $P$ , so we see the price of Argentine goods is going up rapidly, roughly 20% a year. In contrast,  $eP^*$  is going up less:  $P^*$  is roughly flat (1-2% inflation in the US) and  $e$  is rising (if we compute its rate of change) 5% in 2011 and 10% in 2012. Thus  $RER$  is rising, as Argentine goods get relatively more expensive.

In words: the combination of high inflation and more modest currency depreciation has made Argentine goods expensive.

Grading: 5 points for the basic idea, 5 for a calculation that compares inflation rates and the change in the exchange rate.

- (b) Evidently people want dollars, not pesos, and the central bank supplies them to maintain a relatively stable exchange rate. One possible reason: Argentine prices are rising, and a substantial depreciation is one way to get that. That makes pesos less attractive, since you'd lose (relative to dollars) if the peso falls in value.

Grading: 5 points for something along these lines.

- (c) The debt dynamics equation is

$$\Delta(B_t/Y_t) = (i_t - \pi_t)(B_{t-1}/Y_{t-1}) - g_t(B_{t-1}/Y_{t-1}) + D_t/Y_t.$$

The three terms are

$$\begin{aligned} (i_t - \pi_t)(B_{t-1}/Y_{t-1}) &= -6.3 \\ -g_t(B_{t-1}/Y_{t-1}) &= 2.3 \\ D_t/Y_t &= 0.8. \end{aligned}$$

Their total is  $-3.2$ , so the ratio of debt to GDP will fall to 41.6. Note for later the negative contribution of the real interest rate: they're getting a very good deal on their debt, hard to believe that will continue.

Grading: 3 points for each component done right, 1 more for summing them.

(d) This is a call for the checklist:

- Debt and deficits. (i) The calculation shows the debt ratio is falling. But the US court case could lead to a technical default, which isn't a good thing. And the negative real interest rate is unlikely to continue. If they paid a modest 2% real rate on debt, the debt ratio would go up about 4% this year.
- Banks. The EIU suggests that banks could suffer from a weak economy.
- Exchange rates and reserves. They're losing reserves as they try to keep the peso from depreciating. Either the peso depreciates more or they continue to lose reserves.
- Politics. Always an issue in Argentina. There's some uncertainty given the president's lame duck status and health. On the other hand, a change could make things better.

The fiscal situation, including the court case, the exchange rate and reserve position, the banking system, and the political situation all shows signs of trouble. Overall, I'd say they'll probably muddle through, but there's a chance of serious trouble.

Grading: 10 points for the checklist and its components, 5 points for a sensible argument assessing the various risks.

2. *The supply and demand of Abenomics (30 points)*. Shinzo Abe was elected Prime Minister of Japan in December 2012 after two decades of slow growth and falling prices. He pledged dramatic policy changes to revive the Japanese economy, dubbed the "three arrows" of "Abenomics." We consult the Economist Intelligence Unit for specifics:

- Fiscal stimulus. A sizeable economic stimulus package was passed by parliament in February 2013, and a smaller one in October. This is expected to produce a budget deficit of 8% in 2013.
- Monetary stimulus. A plan to double Japan's money supply within two years was implemented in April 2013 to help to achieve the Bank of Japan's target of 2% inflation.
- Structural reform. This is less clearly articulated, but some observers hope

for a range of micro-based reforms, including loosening product-market regulations that reduce productivity, tightening corporate requirements for funding pensions, creating a more flexible labor market, and reducing subsidies to an inefficient agricultural sector.

Your mission is to explore the impact of the three arrows using the aggregate supply and demand framework.

- (a) Explain, for each “arrow,” whether it affects supply or demand. Which way does each one shift the appropriate curve(s)? (15 points)
- (b) Compare the short- and long-term impact on output of the three policies. Which are likely to have the greatest impact in the short term? In the long term? (15 points)

**Solution:**

This continues to be topical. Here’s a [recent comment](#) about agricultural policy.

(a) We have:

- Fiscal stimulus. This shifts aggregate demand to the right.
- Monetary stimulus. Same.
- Structural reform. This shifts both aggregate supply curves to the right.

Grading: 5 points for each bullet done correctly. The graphs need not be included, but if they are they should be correct.

(b) Fiscal and monetary stimulus will raise output in the short run. They have no long-run impact on output.

Structural reform, on the other hand, raises output both short-term and long-term. In this respect, it’s likely the most important of the arrows. (Also, unfortunately, the one that’s been executed least effectively.)

Grading: 5 points for each one. Also: the original question asks for the short and long-term impact, and doesn’t specify output, so answers might include comments about the impact on prices.

3. *Short answers (40 points).*

- (a) How sensitive to the business cycle would you expect demand for Rolex watches to be? Why? (10 points)
- (b) If US inflation jumped to 5%, how would you expect interest rates to respond? Why? (10 points)

- (c) Given what you know about global economic conditions, how would you expect the US dollar to perform over the next year versus the euro? Why? (10 points)
- (d) Consider the statement: “Tax deductions are good, because they save taxpayers money.” Do you agree or disagree? Why? (10 points)

**Solution:**

- (a) We would expect it to be very cyclical for two reasons: it’s a durable good, and it’s a luxury. Both categories are very cyclical.

Grading: 5 points each for durable and luxury.

- (b) This calls for a rough-and-ready Taylor rule calculation:

$$i = r^* + \pi + 0.5(\pi - \pi^*) + 0.5(g - g^*).$$

With any conceivable inputs, you’d see a sharp increase in the fed funds rate, and therefore in other interest rates.

Grading: 5 points for noting that this calls for the Taylor rule, 5 for suggesting it calls for an increase in the interest rate.

- (c) For most exchange rates, our best guess over periods less than 5 years is no change.

Grading: 10 points for something like this.

- (d) One feature of a good tax system is that it applies a low tax rate to a broad base. Given the overall level of spending, a tax deduction means tax rates must be higher on other things, which violates this principle.

Grading: 10 points for something like this.