



Currency Crises and Note on Currency Crises

Teaching Note

Case Overview

This note presents analysis and a teaching plan for a session on currency crises. It is intended to be used with the Harvard Business School case *Currency Crises* (#799-088) and the accompanying conceptual note, *Note on Currency Crises* (#799-089).

This case is organized into two parts. The first section reviews six major currency crises that have occurred since 1970. These include: the collapse of the Bretton Woods Agreement in 1971; the collapse of the Smithsonian Agreement in 1973; the Mexican debt crisis of 1982; turmoil in the European Monetary System in 1992; the Mexican peso crisis of 1994; and the Asian financial crisis in 1997-98. The descriptions of the crises are short. They are intended to provide several points of reference for understanding currency crises, not to provide a comprehensive analysis of any particular crisis.

The second half of the case presents short descriptions of and data for five unidentified countries (pages 4-5 and **exhibits 7-11**). Students are asked to predict which countries are on the verge of a crisis. This exercise will be the focus of the class session.

The *Note on Currency Crises* (#799-089) introduces several academic theories about why currency crises occur, why the onset of crises often appears so sudden, and whether crises can spread from one country to others. The note also discusses several efforts to predict crises.

Teaching Objectives

This case is used in the Harvard Business School's second-year MBA course, *New Opportunities in Emerging Markets* (NOEM). NOEM explores the business opportunities available in emerging markets and systematically explores the risks of operating in these markets. The course is organized into four modules:

*This note was prepared by Professor Robert E. Kennedy and Research Associate Brian P. Irwin for the sole purpose of aiding classroom instructors in the use of *Currency Crises*, HBS No. 799-088, and *Note on Currency Crises*, HBS No. 799-089. It provides analysis and questions that are intended to present alternative approaches to deepening students' comprehension of business issues and energizing classroom discussion.*

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1. The first examines how environmental volatility affects firm economics and business strategy. Cases explore the effects of hyper-inflation and currency volatility, trade liberalization, shifts in the regulatory environment, and predicting currency crises.
2. The second module examines a series of firm-level operating challenges that confront managers in emerging markets. These include labor relations, business-government relations, establishing and managing joint ventures, value chain management, bribery and corruption, and poorly functioning complementary markets.
3. The third module explores industry dynamics following liberalization. Several industrial organization readings are assigned and the cases emphasize the importance of establishing a business model that matches expected industry dynamics. Cases explore market assessment and entry, distinguishing first-mover opportunities from transitory opportunities, eco-tourism, opportunities and risks in infrastructure provision, and managing risk through partner selection and operating contracts.
4. The final module explores investing in and financing firms in emerging markets. Cases examine where and when to raise debt financing, merchant banking, the organization and operations of venture capital firms, and the use of off-shore corporations as investment vehicles.

The *Currency Crisis* case and the *Note on Currency Crises* are used for the final session of the first module. Currency crises have major effects on both the countries they strike and on firms operating in these countries. Harvard MBA students receive some exposure to currency crises during the required first year course, *Business, Government, and the International Economy* (BGIE), when they do cases on the Mexican peso crisis of 1994 and the Asian financial crisis of 1997-1998. But in both instances, students know that a crisis occurred. This leads to a particular type of ex-post analysis which, I believe, gives students a false confidence in their ability to predict crises. This case takes the opposite tact. Descriptions and data are provided for five unidentified countries and students are asked to predict, ex-ante, which is on the verge of a crisis.

The objectives for the class session are the following:

1. To provide students with an overview of several historical currency crises.
2. To examine how various economic factors might affect a country's ability to maintain its exchange rate.
3. To have students attempt to predict crises when they do not know how a situation ended.
4. To discuss what other data would be useful in predicting a crisis.
5. To discuss efforts to predict crises and consider why these efforts have had so little success to date.

Teaching Assignment

The class explores why currency crises occur and why they are so difficult to predict. The case reviews the onset of six historical crises and then presents descriptions of and data on five unidentified countries. A conceptual note introduces several academic theories about how crises unfold and efforts to predict crises.

Note: three of the unidentified countries described in the case experienced a crisis—defined as a 10% decline in the value of the national currency in less than a week—within one year of the events presented. The other two countries did not experience a crisis within two years of the events described.

Questions:

1. Which of the five countries described in the case is on the verge of a crisis? Why?
2. What factors make a currency crisis more (less) likely to occur? Why?
3. What other information would help you determine whether a currency crisis was imminent?
4. Why was Argentina able to survive 1995 in the wake of the Mexican peso crisis?
5. Why are crises so difficult to predict?

Analysis

After your introductory remarks, I suggest organizing the class discussion into four areas. These are:

1. which country is on the verge of a crisis?
 - a related topic is why a country would want to fix its exchange rate. This discussion should be worked into the “which country” discussion using a side board.
2. What other factors would be useful to know?
3. How was Argentina able to avoid a crisis in 1995?
4. Is it possible to predict crises?

I discuss each of these topics in this section. The teaching plan overview and teaching plan detail below discuss sequencing and suggested questions.

One of the key learning points for this session is to demonstrate the difficulty of predicting currency crises. Ex-post analysis sometimes creates a false sense of confidence in students.

Which Country?

I have organized this discussion into three parts. The first presents a short discussion of the benefits and costs of pegging a country’s exchange rate. The second discusses economic measures that might signal that a crisis is near. The third reviews key measures for each of the five “unknown” countries.

When discussing which country is most likely to have a crisis, it is important to push students to be precise about how each factor affects a country's ability to maintain a pegged exchange rate. I have found that many students are extremely confused about how various policies and indicators interact.

The costs and benefits of pegging A currency crisis typically occurs when a country decides, or is forced, to stop defending the fixed value of its currency. To understand why a government might make this decision, it is important to examine the costs and benefits of pegging a country's currency.

A country will typically fix the value of its currency (i.e. "peg" the currency) to some external value for one of three reasons:

- to *gain credibility* for reform—pegging the national currency is a highly visible signal that monetary policy will be responsible and aimed primarily at controlling inflation. A currency peg effectively eliminates discretion in monetary policy because it forces the central bank to manage interest rates to maintain the value of the currency. For countries with a history of lax monetary policy (e.g. Argentina or Italy), tying the central bank's hands may be necessary to convince market participants that a program will last.
- to serve as an *inflation anchor* in a stabilization program—countries suffering from high inflation often peg their currency to create pricing pressure from imports. A fixed currency value means that the price of imports will be stable. If local producers attempt to raise prices, they will be undercut by imports. Similarly, exporters will be forced to invest and increase efficiency in order to be cost competitive.
- to *facilitate trade and investment flows*—eliminating currency volatility reduces the risk of making multi-period investments or contracts. Countries that wish to promote regional integration, such as those in Europe or Mercosur, fix the value of national currencies to facilitate economic linkages.

Pegging a currency also involves substantial costs. These include:

- *a rising real exchange rate hurts domestic producers*—inflation raises local costs and makes it difficult for exporters to price competitively in foreign markets. Similarly, importers will be adversely affected because the price of imports from low-inflation countries will remain stable while local costs are rising.
- *a peg precludes the use of discretionary monetary policy*—if different countries in a currency arrangement are at different points in the business cycle, a common monetary policy may not be appropriate. This occurred following German reunification in 1990 (see pages 2 - 3 of the case). The German economy was overheating, while its EMS partners were in recession. Overly tight monetary policy is much less popular than lax monetary policy, so the pressure to change typically comes from the slow-growth countries.
- *a peg can encourage speculation*—by creating the possibility of a one-way bet. When domestic policy is inconsistent with the peg, or if market participants doubt a government's commitment to a peg, speculators can bet that the peg will break by shorting the target currency. If the peg holds, the speculator loses only the carrying cost of the position. Hedge funds were rumored to have played a large part in the U.K.'s ejection from the EMS in 1992.

The *Note on Currency Crises* (pages 2-3) discusses the how the tradeoff between the costs and benefits of a pegged currency can change through time.

Economic indicators The case provides short descriptions of and five years of economic indicators on each country (pages 4 and 5, and exhibits 7 through 11). I suggest starting with an open ended question, such as:

Which of the countries described in the case is most likely to have a crisis?

Your opener will identify one of the countries (most often, country B). Then ask the student why he/she chose this country. Students typically identify one of four economic measures. When the student identifies a measure, ask him/her to explain how such a measure would create pressure to devalue. Keep in mind that countries that allow their currencies to float rarely experience crises. The spectacular nature of a currency crisis occurs when a fixed (or managed) exchange rate mechanism is abandoned under duress.

The measures, and corresponding logic, are the following:

1. The **current account** (or other balance of payments measure)—these figures are reported as a percentage of GDP in the case. A large current account deficit means that a country must either:
 - a) attract capital from abroad to gain access to the foreign currency it needs to cover the current account deficit, or
 - b) draw down its stock of foreign reserves.

There is no strict guideline regarding what level of current account deficit can be sustained. Deficits of 1-3% of GDP can, in most cases, be easily financed by attracting FDI or portfolio capital. Deficits above 5% of GDP are often considered a warning sign. Whether the deficit can be sustained depends on whether the country is using imports to build productive capacity that will allow it to earn foreign currency in the future, or merely importing consumption goods.

Another consideration is how the country is financing its current account deficit. Foreign direct investment (FDI) is considered less risky than portfolio capital because, once committed, it tends to stay in a country. On the other hand, portfolio capital flows can easily reverse, leading to a rapid drawdown of currency reserves (see discussion in item 2 below).

Among countries that have experienced crises, the combination of a pegged exchange rate and sustained current account deficits is probably the most common characteristic. But many other countries with these same indicators have managed to avoid crises. Examples include: Poland in the mid and late 1990s and Argentina following the Mexican peso crisis in 1994.

2. **Foreign currency reserves**—can be measured as either % of GDP or in terms of *months of imports covered*. A high level of reserves provides a buffer against devaluation. Most countries experience some volatility in the pattern of imports and exports, so some buffer reserves are required to maintain a stable exchange rate. If a country has significant short term external debt or has experienced volatile capital flows, it may choose to hold reserves beyond the level required to cover import fluctuations.

When faced with a persistent current account deficit, the central bank can either draw down reserves or take some action to attract foreign investment. Using reserves to cover a current account deficit causes little domestic dislocation, but this course can only be pursued until reserves are exhausted. Conversely, measures to attract foreign investment—such as raising interest rates or loosening restrictions on foreign investment—are often unpopular at home.

The two measures presented in the exhibits provide somewhat different views on the size of a country's foreign currency buffers. The *months of imports covered* measure indicates the size of reserves scaled by the level required for import flows. The

reserves/GDP measure is less direct. Financial market capitalization and outstanding credit are both related to GDP, so a high *reserves/GDP* figure provides an indirect measure of a country's buffer against capital shifts.

3. **Exchange rates**—The exhibits report two measures of the exchange rate. The first is the *nominal exchange rate index*, with year -5 set to 100. A decline in this measure indicates that the currency has devalued against its currency arrangement benchmark. The second measure is the *real effective exchange rate index*, again with year -5 set at 100. An increase in this measure indicates that the inflation-adjusted value of the currency has increased (e.g. the inflation rate exceeded the currency's nominal depreciation). The real effective exchange rate is calculated using different countries' share in trade as weights.

An increase in the real exchange rate creates pressure for a devaluation in several ways. First, it hurts all firms that are exposed to foreign competition. Exporters suffer because their costs are higher when measured in foreign currency. Firms that face import competition are hurt because foreign producers are under no pressure to increase prices with domestic inflation.

The impact of an increase in the real exchange rate depends, to a large extent, on the trade-to-GDP ratio. An increase in the real exchange rate is very painful for the business community in countries with high trade-to-GDP ratios (for example Uruguay or Singapore) because a large portion of production is exported and a large portion of goods are imported. Similarly, devaluation would be very attractive for these countries because many domestic firms would be positively affected. The costs and benefits of a shift in the real exchange rate are lower for countries with low trade-to-GDP ratios.

4. The **fiscal deficit**—many students focus on the fiscal deficit as a sign of macroeconomic weakness. However, the link to the value of a country's currency is less obvious than many students believe. If a country has a high domestic savings rate, a fiscal deficit can be financed with local savings. This means that there would be no need to borrow abroad and thus no pressure on the exchange rate. If, however, the domestic savings rate is low, or if the government finances the deficit by printing money (or easing monetary policy) pressure on the currency will grow.

Country discussions

Country A—United Kingdom, 1991

Country A is the United Kingdom. The data in **exhibit 7** cover the period from 1986 (year -5) to 1991 (year 0). The U.K. joined the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) on October 8, 1990, which was during year -1 of **exhibit 7**. The U.K. was a member of the ERM for less than two years. It was, however, a very tumultuous period as Britain struggled to maintain the parity of the pound because of high German interest rates.

In late summer 1992, the pound approached the bottom of its 6% ERM band and came under heavy speculative pressure. George Soros, a prominent hedge fund manager, is rumored to have established a short position on the currency totaling \$15 billion. The speculative pressure on the pound peaked on September 16, 1992, forcing the U.K. to raise domestic interest rates from 10% to 12%, and then to 15%. Still unable to stem the speculative pressure on the currency, the government abandoned the ERM the next day. Italy followed soon thereafter.

At the end of 1991 (i.e. year 0), few economic indicators foreshadowed the turmoil that would unfold nine months later:

current account—was in deficit, but improving, from 4.4% of GDP in year -2 to 1.3% in year 0. One minor concern was the low level of net FDI. The U.K. was financing its current account deficit primarily with "Other Capital Flows," which could quickly reverse.

foreign currency reserves—were somewhat low compared with other countries in the exhibits, but stable. Reserves as a percentage of GDP has been near 4% for three years. The country had only 2.5 months import coverage, but this was a slight improvement from 2.0 months the year before.

exchange rate measures—both measures of the exchange rate had been fairly steady over five years. The nominal value of the pound had declined slightly against the German DM, while the real exchange rate had risen slightly. But a 6% increase over five years is very small. Little cause for concern here.

fiscal balance—the central government had been running a fiscal surplus until year 0, when it shifted to a deficit of 1% of GDP. Again, little cause for concern.

Few students typically focus on Country A as a candidate for a crisis.

Country B—Argentina, 1994

Country B is Argentina. The data in **exhibit 8** cover the period from 1989 (year -5) to 1994 (year 0). Macroeconomic performance has been very strong during the period covered in the exhibit. GDP growth has averaged almost 9% since year -4, inflation has declined from over 1,000% to only 4.3%, and investment has grown steadily.

Most students identify country B as the most likely to have a crisis, so you should be prepared to start here. The key indicators are as follows:

current account—was in deficit and steadily deteriorating, from 0.4% of GDP in year -3 to 3.6% in year 0. The deficit was offset by both inbound FDI and portfolio capital flows. “Other capital flows” have been volatile, indicating potential susceptibility to capital flight.

foreign currency reserves—have been growing, despite the current account deficit. Argentina has 8.6 months of import coverage, the highest of any country in the case. One reason for this high measure is that the trade to GDP ratio was a very low 16%.

exchange rate measures—Argentina fixed the value of its peso to the U.S. dollar at a one-to-one rate in April 1991 (year -3) and the nominal value of the currency has been steady since. Because inflation remained in double digits until year zero, the real value of the peso increased substantially.

fiscal balance—The government budget has been in rough balance throughout the observation period ($\pm 1\%$).

Year 0 is important for Argentina because at the end of the year (December, 1994), Mexico allowed its peso to float freely and caused the “tequila crisis” throughout Latin America. Many observers believed Argentina would be forced to abandon the peg. However, the government stuck to its currency board arrangements. Interest rates rose and the country entered a sharp recession. The downturn was short-lived, the peg withstood the shock, and the country soon resumed growth.

Country C—Philippines, 1996

Country C is the Philippines. The data in **exhibit 9** cover the period from 1991 (year -5) to 1996 (year 0), six months before the onset of the Asian financial crisis. During this period, the Philippine peso was pegged to the U.S. dollar.

current account—the current account was consistently in deficit and fairly erratic. In year 0, it was 4.8% of GDP, up from 2.7% in year -1. The primary problem was a very large

trade deficit (> 10% of GDP), which was partially offset by surpluses in services and factor payments. The majority of capital inflows were in the form of portfolio capital. "Other capital flows" were consistently positive.

foreign currency reserves—foreign currency reserves have grown as a percentage of GDP, but remained fairly constant when measured as months of imports. This is because the trade-to-GDP ratio had been growing rapidly.

exchange rate measures—the nominal exchange rate had been fairly steady, but the real exchange rate appreciated by 30% because of high domestic inflation.

fiscal balance—the government budget was in moderate surplus.

Although none of the economic indicators looks terrible (except the trade balance) students often choose Country C as a potential crisis country. Those that do tend to focus on the trade deficit, the prominence of portfolio capital inflows, and the extent of poverty, mentioned in the text.

After Thailand floated the baht on July 2, 1997, the Philippines followed quickly. The country abandoned its dollar peg on July 11th. The peso plunged by 52% between July 1 and December 31, 1997.

Country D—South Korea, 1996

Country D is South Korea. The data in **exhibit 10** cover the period from 1991 (year -5) to 1996 (year 0), six months before the onset of the Asian financial crisis. Macroeconomic performance was very strong during the period covered in the exhibit. GDP growth averaged more than 7%, inflation was steady, and the currency exchange system, where the won was pegged to an undisclosed basket of currencies, appeared to be working well.

current account—the current account was consistently in deficit, registering a surplus only in year -3 (1993). Until year -1, the deficit had been less than 2% of GDP, but had jumped to 5% in year 0.

foreign currency reserves—reserves as a percentage of GDP have been slowly increasing over the years, although the months of imports covered has remained stable at about 3 months.

exchange rate measures—the nominal exchange rate (versus the dollar) was fairly steady, falling about 9% over five years. The real exchange rate has appreciated slowly.

fiscal balance—the government budget was stable and in small surplus.

Country D provided few indicators of a crisis until year 0 (1996). The high GDP growth combined with stability in other indicators looks great. Based on the trajectory of most measures, the deterioration in 1996 looks transitory.

South Korea had few connections with the economies of southeast Asia and managed to hold out for about five months after Thailand floated the baht. Many economists point to South Korea as an example of irrational contagion, because economic fundamentals did not appear to require sharp adjustment. Nevertheless, in late-November, 1997, the won was under pressure and the central bank widened the currency's trading band from 2.25% to 10%. Speculators attacked and the government floated the won in early December.

Country E—Poland, 1996

Country E is Poland. The data in **exhibit 11** cover the period from 1991 (year -5) to 1996 (year 0). After country B, country E is the second most commonly chosen country.

In 1990, as part of the Polish stabilization plan, the zloty was devalued sharply and then fixed against the dollar. In 1992, the central bank implemented a crawling peg exchange rate system.

GDP growth has been strong, averaging 6.1% since year -3. Other macroeconomic indicators have been erratic, including the current account deficit and the overall balance. Inflation has been declining, but is still high.

current account—the current account has been erratic. After large deficits in 1992 and 1993, the country registered modest surpluses in 1994 and 1995, before registering a deficit of 2.6% of GDP in 1996. The country has financed these deficits with steady inbound capital flows, primarily in the form of FDI.

foreign currency reserves—have grown steadily as a result of the capital inflows. Import coverage is down slightly in year 0, but is still more than six months.

exchange rate measures—this is the main worry. The nominal value of the zloty has steadily declined, but not as fast as inflation. This has led to a 35% real appreciation of the currency (18% in the last two years). Inflation remains high, and the currency peg serves as an inflation anchor, so the real appreciation is likely to continue, unless a crisis erupts.

fiscal balance—the government budget deficit has remained at 2.5-3.0% of GDP for four consecutive years.

What Else Would Students Like to Know?

After discussing the various countries in the exhibits and working through the costs and benefits of a fixed exchange rate, ask:

What other information would be useful to know?

The case contains most of the obvious economic measures, although some students may ask about the term structure of external debt. Most, however, start to focus on political factors. As items come up, ask how they may affect the likelihood of a crisis. Collect these on a side board. Common suggestions include:

- the size of the government's majority in the parliament—a large majority implies that controversial policies can be pursued, at least until the next election. A slim majority, or a coalition government, is much more susceptible to defections when the cost of maintaining the peg starts to rise.
- when are the next elections?—crises often occur just after national elections. In the run-up to an election, no one wants turmoil. Shortly after an election, however, the temptation is great to get all the unpleasant steps out of the way. Mexico experienced crises after its 1982 and 1994 elections. Brazil's currency collapse of 1999 occurred just months after President Cardoso was re-elected in October 1998.
- where does the opposition stand on the peg?—if the opposition party supports the peg, the pressure to change will be significantly less. In Argentina, Chile, and Poland, none of the major parties argued for a change in policies. Conversely, Britain's position on the EMS split both of the country's major parties, so the country's commitment was always in question, no doubt encouraging speculators.

- how does recent history influence the perceived costs and benefits of pegging?—countries that have recently experienced a severe economic crisis (e.g. hyperinflation, the collapse of communism, etc.) are more likely to endure the pain involved in a currency peg.
- the presence of other goals—such as France’s vision of a united Europe, or Mexico’s vision of binding itself to the United States, make it much easier to endure the costs and adjustments associated with a fixed currency.

In short, most of the “other information” involves political factors. One of the key lessons for the session is that countries always have *some* economic options that would allow them to maintain the value of their currency. For example:

- Sweden raised overnight interest rates to the equivalent of 500% per year to fight off speculative attacks in September 1992. Hong Kong took similar action in October 1997, raising overnight rates above 300%.
- regulating, or suspending, capital account transactions (Poland, Chile);
- implementing a currency board (Argentina, Hong Kong, Estonia)
- suspending convertibility—as Ecuador did in March 1999.

How Could Argentina Avoid a Crisis in 1994-1995?

Most students will have identified country B (Argentina, 1994) as the country most likely to be on the verge of a crisis. After you reveal which countries did, and did not, experience a crisis, it is useful to spend a few minutes discussing how Argentina was able to avoid a devaluation. Key factors included:

- the currency board was seen as the symbol of the reform program. Abandoning this symbol would have raised doubts about the entire reform program.
- Argentina’s recent experience with hyperinflation (inflation > 2,000% in 1989) made the cost of maintaining the peg appear manageable, and the risks of a devaluation appear very large, by comparison.
- all major political parties supported the reform program. Some businessmen and academics called for a currency adjustment, but almost no politicians did.

Efforts to Predict Crises

Take the last few minutes of class to discuss why crises are so difficult to predict. The IMF study, mentioned in the *Note*, concluded that no single indicator does a good job of predicting crises. After-the-fact analyses of crises often reveal large current account deficits, high inflation, and rising real exchange rates. But using these factors in a predictive model leads to many false positives. As an investment banker acquaintance of the author quipped, “We’re getting better. Our model predicted 12 of the last 5 crises.”

I have attached excerpts from one investment bank’s analysis of which countries were most vulnerable in the wake of the January 1999 Brazil crisis. The bank employed five measures:

1. Brazil’s share in each country’s trade—a higher figure is thought to make a country more vulnerable.

2. the overlap in export markets—countries that export to the same countries as Brazil would be hurt by its improved competitiveness.
3. Brazil's share in each country's real effective exchange rate—another way of measuring Brazil's share of bi-lateral trade.
4. external amortization as a percentage of reserves—compares short-term debt service requirements to foreign currency reserves. Low coverage indicates that a country may be vulnerable.
5. a "contagion" index—calculated using equity market responses to previous crises. A high figure indicates high vulnerability.

Using this purely data-driven methodology, this investment bank ranked Argentina as the most vulnerable country in the wake of Brazil's crisis. But the model did not take account of political factors. The next country to have a crisis was Ecuador, which did not appear among the top ten most vulnerable countries.

Teaching Plan Overview

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|--|--------------|
| 1. Introduction | (5 minutes) |
| 2. Which country? | (30 minutes) |
| —side discussion: Fixed vs. floating rates | (10 minutes) |
| 3. Other data | (10 minutes) |
| 4. Why not Argentina? | (10 minutes) |
| 5. Other models | (10 minutes) |
| 6. Conclusion | (5 minutes) |

Teaching Plan Detail

1. Introduction (5 minutes)

I start the class with something like the following:

This is the last case in the first module, which focused on volatility in the business environment. We examined how external liberalization, hyper-inflation, currency volatility, and regulatory shifts all affect business economics. Today, we will explore the onset of currency crises. Most of you looked at the Mexican peso crisis and the Asian financial crisis in BGIE. Today's discussion will be a little different, because you don't know how things turn out.

Today's discussion will touch on theory, but the primary focus will be on what an operating manager might see—is a country in danger of experiencing a crisis?

2. Which country?

(30 minutes)

There are two approaches to opening the class. If most students have discussed fixed versus floating exchange rate regimes, I recommend jumping right into the analysis of the countries. If students have not familiar with the costs and benefits of fixed rates, you should probably start with an explicit discussion of that topic (see topic 2a below). If you go with the standard opening, ask:

Q: Which country is most likely to experience a currency crisis?

Q: Why?—Explain your logic for choosing a country.

Push the student to explain his/her reasoning using the economic figures from the exhibits (see the discussion in the analysis section of this note). Use board one to gather the various indicators for the five countries (see attached board plan).

There usually some disagreement among the students about which country is most likely to experience a crisis. In this portion of the discussion, it is important to push the students on their logic. It should become clear that there are no perfect indicators that signal a crisis is approaching.

Q: How would this lead to a crisis?

Q: Given this indicator, what options does the national government have to prevent a crisis?

Exploring the linkages between different economic conditions, the pressure they create for devaluation, and the government's possible responses will reinforce the conclusion that the government almost always has some options available to avoid devaluation. The real decision involves balancing the costs and benefits of changing policies.

2a. Fixed vs. floating

(10 minutes)

The discussion of the unidentified countries will typically lead into some debate about the benefits of fixed vs. floating exchange rate regimes. Use a side board to record the pros and cons of a fixed exchange rate.

If your students are not familiar with different exchange rate regimes, you may want to start the class with this discussion.

Left Side Board**Why Fix the Exchange Rate?**

<u>Benefits</u>	<u>Costs</u>
—gain political credibility	—hurts domestic producers
—a powerful symbol	—precludes discretionary monetary policy
—inflation anchor	—can lead to speculation
—facilitate trade and inv.	

3. Other Data

(10 minutes)

After the discussion of how various economic factors create pressure for a currency crisis, move the discussion to "What else."

Q: What other data or information would you like to see before predicting a crisis?

Political factors are enormously influential in either causing or staving off a financial crisis. Refer to the analysis section of this note for an explanation of how politics can influence crises. I use the right side-board to gather some of the non-economic elements that could effect a crisis.

Right Side Board

Other Measures

<u>Indicator</u>	<u>Why worry?</u>
Size of parliamentary majority	Political will to withstand pressure
Proximity to elections	Political will
Position of the opposition party re: peg	Political will
Recent experience (hyper inflation, etc)	Affects perceived costs and benefits
Other goals (EU, etc.)	Political will
Reserves/amortization	vulnerability to speculation

I suggest ending this discussion by revealing the names of the countries. I have attached two slides that update key economic indicators for year 0, year +1, and year +2 (see attachments).

4. Argentina

(10 minutes)

Following the abstract discussion about the unidentified countries, I suggest taking a little time to update students on Argentina's experience, and the discuss how it was able to avoid a crisis in 1995. There is not much in the case to support this discussion, so you'll have to rely on your Latin American students.

Q: Following the Mexican peso crisis in December 1994, many analysts and economists identified Argentina as the next country that would be forced to abandon its peg. During 1995:

- *unemployment increased from less than 10% to 19%;*
- *GDP fell by 4.6%;*
- *several banks collapsed and were sold to foreign investors.*

In the face of all this adversity, how did Argentina survive and maintain the peg?

In short, political will and fear of a return to the economic chaos of the 1980s. As was noted in the analysis section, most politicians in Argentina, including those from opposition parties, supported the currency board. As a result of this widespread consensus, the Argentine government was able to resist the pressure for devaluation.

Growth soon returned, with GDP rising 4.3% in 1996 and 8.6% in 1997. As of April 1999, the one-to-one parity with the dollar was still in place, having survived Brazil's real crisis in January 1999. Argentina's inflation rate was not below the rate in the United States and those of its trading partners, so the real value of the currency was declining.

5. Other models

(10 minutes)

After the discussion of Argentina, I suggest spending whatever time is left to ask students how they would go about building a predictive model. Record their thoughts on the second board.

I suggest leaving this discussion fairly unstructured. I have included a slide that summarizes one investment bank's conclusions regarding vulnerability in the wake of the Brazil crisis in January 1999.

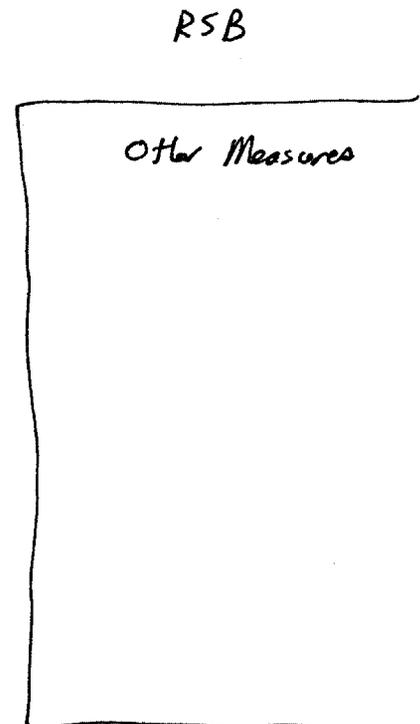
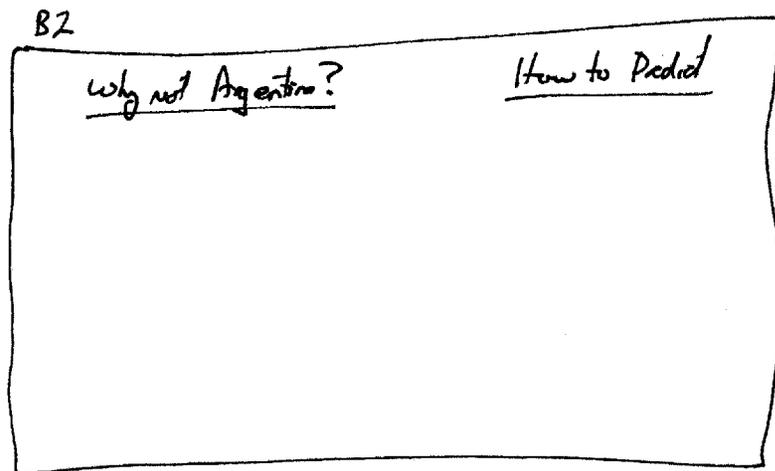
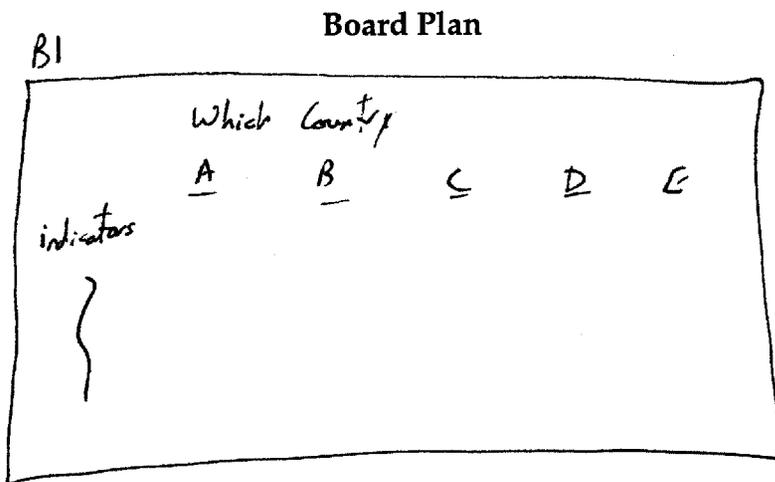
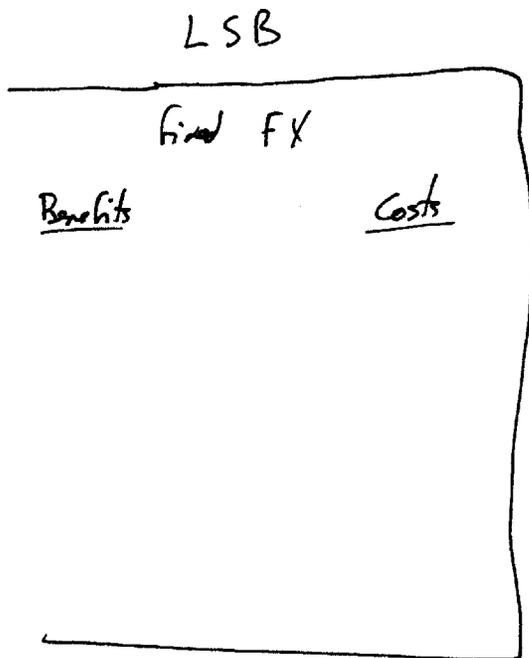
6. Conclusion

(5 minutes)

The main conclusion to make from the discussion on currency crises is they are very hard to predict. With the benefit of hindsight, it is easy to consider the economic and political dynamics and assert that the crisis should have been predicted. However, those analysts who regularly make predictions have very poor records of forecasting.

Students should also understand the trade off between risk and return. As the risk of a crisis increases, the cost to the national government of maintaining the peg increases, as do returns to staying invested (i.e. local currency interest rates).

Finally, it is important to understand that crises are fundamentally a political decision. The willingness of the government in power to maintain a peg will largely effect the potential for a crisis.



Board 1

Which country?

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
Currency					
—nominal	Stable	Stable	Stable	Fluctuate/stable	Large depreciation
—real	Stable	↑↑-now stable	Steady ↑	Slow ↑	Rapid appreciation
Current Account Deficit	Improving (-1.3%)	Worsening (-3.6%)	Stable (≈4%)	Sharp ↑	Worsening (-2.6%)
Fiscal Deficit	Small ↓	Small ↓	Balance	Balance	Stable (2.5%)
Reserves	Small ↓ (5.2%→3.8%)	Stable (5%)	Growing (12%)	Steady	Rapid growth (14%)
Interest Rates	Flat ↓ declining	Declining	Stable	Steady	Steady decline/high
Inflation	Declining (6%)	Rapid decline/low (4%)	Moderate (8%)	Stable (5%)	Steady decline/high

Country Update (1)

	<u>Year 0</u>	<u>Year +1</u>	<u>Year +2</u>
Country A, UK, 1991			
Currency (per DM)	0.34	0.36	0.40
Current Account (% GDP)	-1.3	-2.0	-1.7
GDP Growth (%)	-1.9	-0.6	2.1 ← gets better
Inflation (%)	5.9	3.7	1.6 ← devel. no problem.

$\xrightarrow{-18\%}$

Country B Argentina, 1994

Currency (per USD)	0.99	1.00	1.00
Current Account (% GDP)	-3.6	-1.0	-1.3
GDP Growth (%)	8.5	-4.6 (1 year glitch)	4.3
Inflation (%)	4.3	3.3	0.3

Country C Philippines, 1996

Currency (per USD)	26.2	45.3	38.2
Current Account (% GDP)	-4.8	-7.1	-1.0
GDP Growth (%)	5.4	5.1	-0.1
Inflation (%)	8.4	5.1	10.4 (import in bill.)

$\xrightarrow{-73\%}$ $\xrightarrow{+16}$

Country Update (2)

	<u>Year 0</u>	<u>Year +1</u>	<u>Year +2</u>
Country D Korea, 1996			
Currency (per USD) - <i>year Aug.</i>	771	844 ^{-9.5%}	1,695 ^{-101%}
Current Account (% GDP)	-5.0	-3.3	+12.5 - !
GDP Growth (%)	7.2	5.4	-7.9 ← big slump
Inflation (%)	5.0	4.4	8.2
Country E Poland, 1996			
Currency (per USD)	2.70	3.29 ⁻²²	3.45 ^{-4.7} - crawling peg
Current Account (% GDP)	-2.6	-3.2	-3.8
GDP Growth (%)	6.1	6.9	5.5
Inflation (%)	20.1	15.9	12.2

Measures of Vulnerability in the Wake of the Brazil Crisis, Jan. 1999

	<u>Bilateral Trade</u>	<u>Export Overlap Index</u>	<u>Brazil in Real Eff. FX</u>	<u>Ext. Amort as % of Reserves</u>	<u>Contagion</u>	<u>Rank</u>
Argentina	26.2	0.46	7.6	32.4	11.0	1
Peru	2.0	0.49	5.7	55.1	2.6	2
Colombia	10.2	0.47	5.0	66.3	0.4	3
South Africa	0.9	0.43	1.6	173	2.6	4
Chile	6.0	0.51	6.7	19.8	1.2	5
Turkey	0.6	0.52	1.4	106.7	4.7	6
Venezuela	7.0	0.20	3.9	49.6	1.8	7
Thailand	0.6	0.37	1.5	152.2	1.1	8
Korea	1.0	0.24	0.9	41.5	1.6	9
Taiwan	0.8	0.25	0.9	na	2.0	10

Exhibit 1 Exchange Rate Arrangements (As of December 31, 1997)¹

	1991	1992	1993	1994	1995	1996	1997	1998 ⁶
Currencies pegged to:								
U.S. Dollar	24	24	21	23	22	21	20	20
French Franc	14	14	14	14	14	14	15	15
Russian Ruble	-	6	-	-	-	-	-	-
Other Currency	4	6	8	8	8	9	11	12
SDR	6	5	4	4	3	2	3	4
Other Currency Composite ²	33	29	26	21	19	20	17	13
Flexibility limited vis-à-vis a single currency ³	4	4	4	4	4	4	4	4
Cooperative Arrangements ⁴	10	9	9	10	10	12	12	13
Adjusted according to a set of indicators	5	3	4	3	2	2	-	-
Managed floating	27	23	29	33	44	45	46	56
Independently floating ⁵	29	44	56	58	54	52	53	45
Total	156	167	175	178	180	181	181	182

¹ For members with dual or multiple exchange markets, the arrangement is that in the major market.

² Comprises currencies that are pegged to various "baskets" of currencies of the members' own choice, not SDR.

³ Exchange rates of all currencies have shown limited flexibility in terms of the U.S. dollar.

⁴ Pertains to the cooperative arrangement maintained under the European Monetary System.

⁵ Starting May 24, 1994, the Azerbaijan authorities ceased to peg the manat to the Russian ruble and the exchange arrangement was reclassified to "independently floating."

⁶ Through QIII

Source: *International Financial Statistics*, International Monetary Fund, March 1999, p. 8.

Exhibit 2 Mexico 1982

	1977	1978	1979	1980	1981	1982
GDP (1990 pesos m)	457,828	495,626	541,012	586,050	632,620	629,139
Current Account (\$ m)	-1,853	-3,171	-5,459	-10,750	-16,061	-6,307
Current Account/GDP (%)	-2.28	-3.08	-4.06	-5.46	-6.86	-6.23
Trade Balance (\$ m)	-1,021	-1,746	-2,830	-3,385	-3,846	6,795
Exchange Rate (P/\$; year average)	.02257	.02277	.02280	.02295	.02451	.05640
Credit Creation (%)	141.2	32.1	34.9	39.0	48.8	96.6
Reserves less gold (\$ m)	1,649	1,842	2,072	2,960	4,074	834
Months of Imports	3.5	2.8	2.0	1.9	2.0	0.7
Fiscal Balance (mm pesos)	-62	-62	-102	-134	-393	-1,453

All values are year-end

Adapted from: *International Financial Statistics Yearbook*, IMF, 1994, p. 516-519.

Exhibit 3 United Kingdom, 1993

	1988	1989	1990	1991	1992	1993
GDP (1990 pound billions)	537.22	548.94	551.12	540.31	537.45	548.59
Current Account (\$ b)	-29.32	-36.66	-32.49	-14.24	-18.36	-16.21
Current Account/GDP (%)	-3.44	-4.43	-3.06	-1.32	-2.03	-1.73
Trade Balance (\$ b)	-38.16	-40.54	-32.74	-18.27	-23.43	-20.24
Exchange Rate (Pound/\$; average)	0.5614	0.6099	0.5603	0.5652	0.5664	0.6658
Real Effective Exchange Rate	105.9	100.4	100.0	103.5	99.6	91.4
Credit Creation (%)	21.6	24.3	11.0	2.4	3.3	3.8
Reserves less gold (\$ b)	44.11	34.77	35.86	41.89	36.64	36.78
Months of Imports	2.92	2.18	2.01	2.50	2.08	2.18
Fiscal Balance (mm pounds)	7,284	7,971	4,000	-5,689	-29,995	-40,610

All values are year-end, unless otherwise indicated.

Adapted from: *International Financial Statistics Yearbook*, IMF, 1997, p.846-849.

Exhibit 4 Italy, 1993

	1988	1989	1990	1991	1992	1993
GDP (1990 Lira tr)	1,247.0	1,282.9	1,310.7	1,325.6	1,333.1	1,317.7
Current Account (\$ m)	-7,181	-12,812	-16,992	-24,749	-30,091	8,278
Current Account/GDP (%)	-0.86	-1.37	-1.47	-2.00	-2.95	0.91
Trade Balance (\$ m)	-924	-1,664	1,139	-455	3,186	32,825
Exchange Rate (Lira/\$; average)	1,301.6	1,372.1	1,198.1	1,240.6	1,232.4	1,573.7
Real Effective Exchange Rate	92.8	97.1	100.0	100.9	99.5	83.4
Credit Creation (%)	10.27	13.59	11.02	15.84	13.39	4.06
Reserves less gold (\$ m)	34,715	46,720	62,927	48,679	27,643	27,545
Months of Imports	3.23	3.94	4.46	3.44	1.90	2.42
Fiscal Balance (trillion lira)	-126	-134	-145	-149	-163	-157

All values are year-end, unless otherwise indicated. Data for 1992 and 1993 Gov. Deficit is from July, 1998 IFS

Adapted from: *International Financial Statistics Yearbook*, IMF, 1997, p. 486-491.

Exhibit 5 Mexico 1994

	1989	1990	1991	1992	1993	1994
GDP (1990 Peso m)	661	695	724	750	765	799
Current Account (\$ m)	-5,825	-7,451	-14,888	-24,442	-23,400	-29,418
Current Account/GDP (%)	-3.00	-3.16	-5.21	-7.36	-5.79	-11.01
Trade Balance (\$ m)	405	-881	-7,279	-15,934	-13,481	-18,467
Exchange Rate (Peso/\$; average)	2.4615	2.8126	3.0184	3.0949	3.1156	3.3751
Credit Creation (%)	45.6	41.7	35.6	21.4	11.5	29.2
Reserves less gold (\$ m)	6,329	9,863	17,726	18,942	25,110	6,278
Months of Imports	2.18	2.85	4.26	3.66	4.61	0.95
Fiscal Balance (mm pesos)	-25,589	-19,436	-1,990	15,959	4,156	-9,927

All values are year-end, unless otherwise indicated.

Adapted from: *International Financial Statistics Yearbook*, IMF, 1997, p. 588-591.

Exhibit 6 Southeast Asia: Balance of Payments (1985-96)

(% of GDP)	South Korea		Indonesia		Malaysia		Philippines		Thailand		
	1985-89	1990-96	1985-89	1990-95	1985-89	1990-95	1985-89	1990-96	1985-89	1990-95	
Current Account	4.3	-1.7	-2.5	-2.5	2.4	-5.6	-0.5	-3.3	-2.0	-6.8	big neg. swings
Balance of Trade	3.6	-1.2	5.9	4.5	13.7	3.2	-2.9	-8.7	-2.2	-4.7	
Exports	30.7	25.0	21.9	24.2	56.1	73.2	17.1	17.4	22.9	29.6	
Imports	-27.2	-26.2	-15.9	-19.7	-42.5	-70.0	-20.0	-26.1	-25.1	-34.3	
Capital and Financial Account	-2.5	2.5	3.5	4.1	0.5	9.6	1.4	5.5	4.2	10.2	
Direct Investment (net)	-0.1	-0.3	0.5	1.2	2.4	6.9	1.0	1.1	1.1	1.5	Except for Malaysia, mostly coming current acct w/ Debt.
Portfolio Investment (net)	0.2	1.9	-0.0	0.9	1.0	-1.0	0.2	0.3	1.2	1.5	
Equity Securities	0.0	0.8	0.0	0.5	0.0	0.0	0.0	0.0	0.8	0.7	
Debt Securities	0.1	1.1	-0.0	0.4	1.0	-1.0	0.2	0.3	0.4	0.9	
Other Investment (net)	-2.4	1.0	3.0	2.0	-2.8	3.8	0.2	4.0	2.0	7.1	
Monetary Authorities	-0.0	-0.0	0.0	0.0	0.0	0.0	-0.6	0.0	0.0	0.0	
General Government	-1.2	-0.3	2.6	0.5	-1.7	-0.3	2.3	1.1	0.2	-0.4	
Banks	-0.8	0.1	0.0	0.4	-1.0	1.8	-0.2	1.4	0.2	3.5	
Other Sectors	-0.4	1.2	0.4	1.2	-0.0	2.4	-1.2	1.6	1.5	4.0	
Financing	-1.7	-0.6	-0.1	-1.1	-2.9	-5.0	-1.8	-1.8	-3.0	-3.6	
Reserve Assets	-1.4	-0.6	-0.2	-1.0	-2.7	-5.0	-1.0	-1.7	-2.7	-3.5	

Source: Radelet, Steven and Jeffrey Sachs. "The Onset of the East Asian Financial Crisis." Harvard Institute for International Development, March 30, 1998; Table 9.

Exhibit 7 Country A

	-5	-4	-3	-2	-1	0	
National Accounts							
Consumption (% of GDP)	62.8	62.7	63.5	63.4	63.1	63.5	
Investment (% of GDP)	17.1	18.0	20.3	21.0	19.2	16.1	
Government (% of GDP)	21.0	20.6	19.9	19.7	20.5	21.6	
Exports (% of GDP)	25.4	25.1	22.8	23.5	24.2	23.3	
Imports (% of GDP)	-26.3	-26.4	-26.5	-27.7	-26.9	-24.5	
GDP (domestic currency)	100.0	110.0	122.5	134.1	143.2	149.6	
Real GDP (domestic currency)	100.0	104.8	110.1	112.5	112.9	110.7	
GDP (\$ U.S.)	100.0	139.6	150.3	146.0	187.3	189.8	
Balance of Payments (% of GDP)							
Trade Balance	-2.48	-2.40	-4.47	-4.89	-3.08	-1.70	
Net Services	1.60	1.28	0.83	0.67	0.62	0.59	
Net Factor Payments	1.20	0.80	0.95	0.70	0.23	0.01	
Net Transfers	-0.56	-0.71	-0.74	-0.90	-0.82	-0.23	
Current Account	-0.24	-1.02	-3.44	-4.43	-3.06	-1.32	← improving
Net Foreign Direct Investment	-1.49	-1.97	-1.86	-0.60	1.23	-0.01	← very low
Net Portfolio Investment	0.63	8.79	3.81	-4.14	-0.74	-3.79	
Other Capital Inflows [*]	1.74	-3.26	2.01	8.15	2.56	5.56	
Financial Balance	0.88	3.56	3.96	3.41	3.06	1.76	
Overall Balance	0.64	2.54	0.52	-1.01	0.00	0.44	
Reserves (% of GDP)	3.25	5.27	5.17	4.20	3.37	3.89	> low but stable
Months of imports covered	1.83	3.36	2.92	2.18	2.01	2.50	
Exchange Rate and Money Supply							
Exchange Rate [†] (year -5 = 100)	100.0	94.6	100.7	99.5	93.7	95.4	- slow depr.
Real Effective Exchange Rate (year -5 = 100)	100.0	101.8	108.3	102.7	102.3	105.8	- slow app.
Growth of money + quasi-money [‡]	22.6	--	17.3	19.4	10.8	2.0	
Growth of domestic credit	16.8	--	21.6	24.3	11.0	2.4	
Interest Rates							
Lending Rate	10.83	9.64	10.29	13.92	14.75	11.54	
Money Market Rate	10.8	9.47	9.72	13.62	14.64	11.77	
Inflation	3.47	4.12	4.83	7.79	9.53	5.90	← moderate/high
Government Finances (% of GDP)							
Revenues	36.5	36.0	36.1	35.6	37.0	37.5	
Expenses	38.9	36.7	34.5	34.1	36.2	38.5	
Balance	-2.37	-0.68	1.55	1.54	0.73	-0.99	← good

Index numbers (y-5=100.0) All values are year-end, unless otherwise noted.

Adapted from: 1997 *International Financial Statistics Yearbook*, IMF.

* Includes errors and omissions

† Domestic currency/currency arrangement benchmark (year-average). An increase in index means an appreciation of the currency.

‡ Money + quasi-money is equal to the sum of currency outside banks, demand deposits, and time, savings, and foreign currency deposits of resident sectors other than central government.

Exhibit 8 Country B

	-5	-4	-3	-2	-1	0	
National Accounts							
Consumption (% of GDP)	78.1	80.2	83.7	84.9	83.6	82.6	
Investment (% of GDP)	15.5	14.0	14.6	16.7	18.4	20.0	
Government (% of GDP)							
Exports (% of GDP)	13.0	10.4	7.8	6.7	6.2	6.7	} low Trade/GDP
Imports (% of GDP)	-6.6	-4.6	-6.1	-8.3	-8.2	-9.3	
Real GDP (domestic currency)	100	98.7	109.0	120.3	127.8	138.7	
Balance of Payments (% of GDP)							
Trade Balance	--	6.99	2.44	-0.63	-0.94	-1.50	
Net Services	--	-0.55	-0.88	-0.99	-1.06	-1.04	
Net Factor Payments	--	-3.57	-2.35	-1.05	-1.13	-1.16	
Net Transfers	--	0.81	0.44	0.29	0.16	0.11	
Current Account	--	3.69	-0.36	-2.38	-2.97	-3.59	← bad trade
Net Foreign Direct Investment	--	1.49	1.35	1.75	1.26	1.06	} decent mty
Net Portfolio Investment	--	-1.09	-0.02	0.40	10.97	1.61	
Other Capital Inflows*	--	-4.59	-1.42	1.16	-8.41	0.62	} volatile
Financial Balance	--	-4.19	-0.09	3.31	3.82	3.29	
Overall Balance	--	-0.50	-0.44	0.92	0.85	-0.30	
Reserves (% of GDP)	8.10	3.72	3.31	4.36	5.35	5.08	
Months of imports covered	4.5	14.8	9.5	8.8	10.6	8.6	← high
Exchange Rate and Money Supply							
Exchange Rate† (year -5 = 100)	100.0	8.68	4.44	4.27	4.24	4.24	← stable 4 yrs.
Real Effective Exchange Rate (year -5 = 100)	100.0	185.6	248.6	312.7	357.3	340.3	← now depr. b/c inflation is low
Growth of money + quasi-money‡	--	>100	>100	62.5	46.5	17.6	
Growth of domestic credit	--	>100	84.6	23.5	20.7	11.0	
Interest Rates							
Deposit Rate	>100	>100	62	17	11	8	
Money Market Rate	>100	>100	71	15	6	8	
Inflation	>100	>100	>100	24.6	10.6	4.3	← rapid decline
Government Finances (% of GDP)							
Revenues	4.7	4.0	4.4	5.7	6.0	5.5	
Expenses	5.4	4.3	5.0	5.7	6.7	6.2	
Balance	-0.7	-0.3	-0.5	0.0	-0.6	-0.7	← rough balance

Index numbers (y-5=100.0) All values are year-end, unless otherwise noted. --Not available

Adapted from: 1998 International Financial Statistics Yearbook, IMF.

* Includes errors and omissions

† Domestic currency/currency arrangement benchmark (year-average). An increase in index means an appreciation of the currency.

‡ Money + quasi-money is equal to the sum of currency outside banks, demand deposits, and time, savings, and foreign currency deposits of resident sectors other than central government.

Exhibit 9 Country C

	-5	-4	-3	-2	-1	0
National Accounts						
Consumption (% of GDP)	73.0	74.3	74.8	72.3	74.2	74.0
Investment (% of GDP)	20.1	21.0	23.6	23.4	22.3	25.3
Government (% of GDP)	9.9	9.5	9.9	10.5	11.4	11.6
Exports (% of GDP)	29.4	28.7	30.8	32.9	36.4	44.3
Imports (% of GDP)	-32.4	-33.5	-39.1	-39.0	-44.2	-55.1
GDP (domestic currency)	100.0	109.3	119.6	138.8	151.6	171.8
Real GDP (domestic currency)	100.0	100.3	102.5	107.0	112.1	118.2
GDP (\$ U.S.)	100.0	116.1	115.0	151.5	154.2	174.1
Balance of Payments (% of GDP)						
Trade Balance	-6.82	-8.59	-11.48	-11.00	-12.32	-13.83
Net Services	3.93	4.45	2.92	2.96	3.34	4.29
Net Factor Payments	-1.06	0.81	1.71	2.59	5.04	4.00
Net Transfers	1.76	1.49	1.29	1.31	1.21	0.72
Current Account	-2.20	-1.83	-5.57	-4.13	-2.73	-4.82
Net Foreign Direct Investment	1.15	0.42	1.59	1.81	1.49	1.63
Net Portfolio Investment	0.23	0.07	-0.10	0.38	1.64	6.48
Other Capital Inflows*	4.53	4.43	4.69	5.21	1.30	2.00
Financial Balance	5.92	4.92	6.19	7.40	4.43	10.11
Overall Balance	3.73	3.09	0.62	3.26	1.70	5.29
Reserves (% of GDP)	6.89	8.06	8.63	8.43	8.78	12.23
Months of imports covered	3.23	3.64	3.19	3.38	2.90	3.77
Exchange Rate and Money Supply						
Exchange Rate† (year -5 = 100)	100.0	107.7	101.3	104.0	106.9	104.8
Real Effective Exchange Rate (year -5 = 100)	100.0	111.0	110.5	117.5	120.5	130.2
Growth of money + quasi-money‡	17.3	13.6	27.1	24.4	24.2	23.2
Growth of domestic credit	-2.6	17.6	--	19.0	31.3	40.3
Interest Rates						
Lending Rate	23.1	19.5	14.7	15.1	14.7	14.9
Deposit Rate	18.8	14.3	9.6	10.5	8.4	9.7
Inflation	18.7	8.9	7.6	9.1	8.1	8.4
Government Finances (% of GDP)						
Revenues	17.6	17.7	17.4	19.2	18.9	19.0
Expenses	19.7	18.9	18.8	18.2	18.4	18.7
Balance	-2.1	-1.2	-1.5	1.0	0.5	0.3

Index Numbers (y-5=100.0) All values are year-end, unless otherwise noted. --Not Available

Adapted from: 1997 International Financial Statistics Yearbook, IMF.

* Includes errors and omissions

† Domestic currency/currency arrangement benchmark (year-average). An increase in index means an appreciation of the currency.

‡ Money + quasi-money is equal to the sum of currency outside banks, demand deposits, and time, savings, and foreign currency deposits of resident sectors other than central government.

Exhibit 10 Country D

	-5	-4	-3	-2	-1	0	
National Accounts							
Consumption (% of GDP)	53.3	53.7	53.8	53.6	53.4	54.4	
Investment (% of GDP)	38.9	36.4	35.0	35.9	37.3	38.8	
Government (% of GDP)	10.3	10.8	10.8	11.2	10.3	10.8	
Exports (% of GDP)	28.1	28.8	29.2	30.0	33.3	32.7	
Imports (% of GDP)	-30.6	-29.8	-28.8	-30.8	-34.4	-36.7	
GDP (domestic currency)	100.0	111.8	123.9	142.2	161.8	178.8	
Real GDP (domestic currency)	100.0	105.1	111.1	120.6	131.4	140.8	← good growth
GDP (\$ U.S.)	100.0	107.9	116.6	137.2	158.9	161.1	
Balance of Payments (% of GDP)							
Trade Balance	-2.40	-0.57	0.70	-0.74	-0.99	-3.27	
Net Services	-0.76	-0.94	-0.64	-0.46	-0.66	-1.35	
Net Factor Payments	-0.06	-0.13	-0.12	-0.12	-0.29	-0.40	
Net Transfers	0.28	0.36	0.36	0.33	0.05	-0.01	
Current Account	-2.93	-1.29	0.30	-0.99	-1.89	-5.03	← rapid deterioration
Net Foreign Direct Investment	-0.11	-0.14	-0.23	-0.42	-0.39	-0.51	
Net Portfolio Investment	1.08	1.90	3.03	1.57	2.57	3.32	
Other Capital Inflows [*]	1.68	0.88	-2.05	1.14	1.38	2.66	
Financial Balance	2.64	2.64	0.75	2.29	3.56	5.47	
Overall Balance	-0.40	1.22	0.91	1.19	1.56	0.31	
Reserves (% of GDP)	4.8	5.6	6.1	6.6	7.3	7.4	
Months of imports covered	2.15	2.64	3.04	3.15	3.04	2.82	← fairly stable
Exchange Rate and Money Supply							
Exchange Rate [†] (year -5 = 100)	100.0	93.6	91.4	91.3	95.1	91.2	← slow decline
Real Effective Exchange Rate (year -5 = 100)	100.0	105.1	106.2	108.5	112.1	112.1	← slow apprec.
Growth of money + quasi-money [‡]	21.9	14.9	16.6	18.7	15.6	15.8	
Growth of domestic credit	22.6	11.7	12.8	18.4	14.7	19.4	
Interest Rates							
Lending Rate	10.0	10.0	8.6	8.5	9.0	8.8	
Money Market Rate	17.0	14.3	12.1	12.5	12.6	12.4	
Inflation	9.3	6.2	4.8	6.2	4.5	5.0	
Government Finances (% of GDP)							
Revenues	17.1	18.1	19.0	19.9	20.6	21.8	
Expenses	18.7	18.6	18.3	19.6	20.3	21.4	
Balance	-1.6	-0.5	0.6	0.3	0.3	0.5	← surpluses

Index Numbers (y-5=100.0) All values are year-end, unless otherwise noted.

Adapted from: *International Financial Statistics*, November 1998, IMF.

* Includes errors and omissions

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Exhibit 11 Country E

	-5	-4	-3	-2	-1	0	
National Accounts							
Consumption (% of GDP)	59.3	62.1	63.0	64.3	63.7	65.1	
Investment (% of GDP)	19.9	15.2	15.6	15.9	18.3	20.2	
Government (% of GDP)	22.7	21.2	20.4	18.8	17.9	17.5	
Exports (% of GDP)	23.5	23.8	22.9	24.0	24.9	24.8	
Imports (% of GDP)	-25.4	-22.3	-22.0	-23.0	-24.8	-27.6	
Nominal GDP (domestic currency)	100.0	141.4	192.6	260.1	353.6	448.6	
Real GDP (domestic currency)	100.0	102.6	106.5	112.0	119.9	127.2	
Nominal GDP (\$ U.S.)	100.0	98.2	98.9	116.9	157.0	170.9	
Balance of Payments (% of GDP)							
Trade Balance	-0.96	-0.18	-4.80	-0.67	-1.42	-5.78	
Net Services	0.94	1.00	0.78	3.29	3.05	2.70	
Net Factor Payments	-3.92	-5.75	-4.95	-2.97	-1.72	-0.85	
Net Transfers	1.04	0.64	1.04	1.45	0.83	1.34	
Current Account	-2.91	-4.28	-7.93 !!	1.11	0.74	-2.59	← erratic
Net Foreign Direct Investment	0.40	0.92	2.33	2.14	3.12	3.52	} mostly FDI
Net Portfolio Investment	0.00	0.00	0.00	-0.72	1.02	0.24	
Other Capital Inflows*	-7.08	-2.61	1.18	-12.03	3.37	1.63	
Financial Balance	-6.68	-1.69	3.51	-10.61	7.50	5.39	
Overall Balance	-9.58	-5.97	-4.42	-9.51	8.24	2.81	
Reserves (% of GDP)	4.92	5.65	5.61	6.77	12.75	14.14	} steady growth because of K in flows
Months of imports covered	2.89	3.50	2.87	3.70	6.64	6.15	
Exchange Rate and Money Supply							
Exchange Rate† (year -5 = 100)	100.0	77.6	58.4	46.5	43.6	39.2	- steady ↓
Real Effective Exchange Rate (year -5 = 100)	100.0	106.4	114.1	115.1	124.5	135.5	- steady APP
Growth of money + quasi-money‡	36.95	57.49	36.04	38.23	34.99	30.82	
Growth of domestic credit	158.69	55.63	44.25	30.13	20.07	31.39	
Interest Rates							
Deposit Rate	53.5	37.8	34.0	33.4	26.8	20.0	
Money Market Rate	49.9	29.5	24.5	23.3	25.8	20.6	
Inflation	76.7	45.3	36.8	33.3	26.8	20.1	- declining, b still high
Government Finances (% of GDP)							
Revenues	26.1	27.4	29.5	30.0	29.3	27.5	
Expenses	29.9	33.4	32.3	32.7	31.9	30.0	
Balance	-3.8	-6.0	-2.8	-2.7	-2.6	-2.5	← steady

Index numbers (y-5=100.0) All values are year-end, unless otherwise noted.

Adapted from: *International Financial Statistics Yearbook*, 1998. IMF.

Government finance figures from: *1997-98 EIU Country Profile, 1997-98*, Economist Intelligence Unit.

* Includes errors and omissions

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‡ Money + quasi-money is equal to the sum of currency outside banks, demand deposits, and time, savings, and foreign currency deposits of resident sectors other than central government.