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# Delayed Financial Disclosure: Mexico's Recent Experience

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**Abstract**

This article documents a delay in the public release of Mexican international reserve data in the months before Mexico's debt crisis at the end of 1994. The article establishes that in that year investors did not know the level of Mexican reserves before October; yet this lack of information did not seem to reduce investor confidence in the Mexican economy. The article does not establish whether the delay in releasing reserve data was due to logistical problems or to a government strategy. The possibility that the delay was strategic is evaluated by developing an economic model that captures some of the principal constraints facing the Mexican government in 1994 and that makes explicit the conflicting objectives of the government and investors. The model shows that in such an environment with private information, strategic delay can occur in equilibrium if investors are uncertain about the cause of the delay.

*The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.*

After several years of strong economic performance, Mexico suddenly suffered a financial crisis at the end of 1994. Within one month, the value of the peso fell by more than 35 percent and Mexican international reserves were depleted to the point that default on dollar-indexed sovereign debt looked imminent. One issue that has surfaced since the crisis is whether the government strategically delayed the release of data on its holdings of international reserves in the months before the crisis. Why are international reserves significant? From the perspective of investors, the stock of international reserves provides valuable information about the expected return on their investments. Investors may construe a low stock of international reserves as bad news that signals an impending devaluation or a possible default on sovereign debt, and they may choose to liquidate their holdings of Mexican securities. In this article, we document that there was bad news about Mexican international reserves in 1994 and that the public release of this news was, in fact, delayed. We contend that this delay was within the range of the market's expectation based on its experience with Mexican reporting practices, but that the delay might have been an equilibrium strategic decision by Mexican policymakers in an environment with private information.

To show that the release of reserve data was delayed, we consider the various channels used to convey data to the public and show that there was delay in each of these channels. While this evidence makes a compelling case that there were delays, it does not make clear whether these delays were due to logistical problems or were strategic decisions to withhold bad news.

To evaluate the possibility that delays were strategic, we develop a model that captures some of the principal constraints facing the Mexican government and that makes explicit the conflicting objectives of the government and foreign investors. Our model shows that strategic delay can occur in equilibrium as long as lenders are uncertain about the cause of the delay.

## The Facts

### *Bad News*

Here we document that there was bad news about Mexican international reserves in 1994.

Again, data on international reserves are valuable to foreign holders of Mexican securities. Historically, decisions to devalue currencies have often been preceded by a large decline in the stock of international reserves. Debt crises have also typically been prompted by an inability of a government to come up with the foreign reserves necessary to meet obligations denominated in international currencies such as the dollar.[1] In the recent Mexican crisis, a lack of sufficient international reserves to meet outstanding short-term government obligations seems to have led to the decision to devalue the peso and then, somewhat later, to the U.S. government's decision in January 1995 to offer Mexico financial aid.

In February 1994, Mexican international reserves had risen to record levels with the new investment that followed the North American Free Trade Agreement (NAFTA). International reserves stood at almost $30 billion, an amount nearly double the size of the monetary base. Chart 1 shows that by the end of April, however, reserves had fallen by $10 billion. Significant events preceded this drop in reserves. Increases in short-term U.S. interest rates starting in February and the assassination in March of the presidential candidate Luis Donaldo Colosio led many investors to sell pesos and buy dollars. Joint efforts by the Mexican and U.S. governments finally stabilized the outflow of funds and the resulting loss of international reserves to a level of about $17 billion. Among those efforts: Mexico raised short-term rates and let the peso fall from the top to the bottom of its target range, while the United States announced a new line of credit for Mexico of $6 billion in April. International reserves remained essentially stable until June, when the Mexican secretary of the interior, Jorge Carpizio, submitted his resignation due to irregularities in the way the polling for the presidential election was being organized. After he withdrew his resignation, Mexican international reserves recovered in July and August.[2]

The next significant event that affected reserves in Mexico occurred in September, when Jose Francisco Ruiz Massieu, the secretary general of the Institutional Revolutionary Party, was assassinated.[3] Reserves fell in September but rose again in October to finally stabilize at a level of more than $17 billion.

That level of reserves might seem adequate to have met Mexico's obligations, since those reserves exceeded the stock of the monetary base. However, the Mexican government took other actions during the year which suggest that reserves might not have been adequate. In April, the Mexican government started borrowing heavily in the Tesobono market. *Tesobonos* are dollar-indexed, short-term government debt securities. At the start of 1994, outstanding Tesobono obligations were only $2 billion. By September, however, they had risen to more than $20 billion. Because of these government debt securities, international reserves were too low in September 1994 to meet Mexico's obligations. (See Cole and Kehoe 1996.)

Throughout 1994, the United States put pressure on Mexico to devalue. This pressure increased in October, when the United States said that it would not extend credit to cover a shortfall in Mexico's international reserves. This pressure, plus a continued gradual erosion of international reserves, ultimately led the Mexican government to attempt a 14 percent devaluation on December 20. The new target could not be sustained, and within five business days, the peso's value per U.S. dollar fell from 3.4 to 5.4 pesos. Following these events, the Tesobono market collapsed. Investors chose to redeem their holdings rather than roll them over. Even with a floating peso, international reserves continued to hemorrhage. In January 1995, with the Mexican government on the verge of default on these obligations, the U.S. government produced its financial aid package.

### *Delayed Release*

So there was quite a bit of bad news about Mexican international reserves during 1994. Now we show that the release of this bad news to the public was delayed.

Before the most recent Mexican crisis, data on Mexican reserves were publicly released in two ways. One was directly from the Mexican government to the public; three official announcements about Mexican reserves were made each year. The other was indirectly; the Mexican government reported data on Mexican reserves to the International Monetary Fund (IMF), which published them monthly

in its *International Financial Statistics* (*IFS*). During 1994, both an official announcement about reserves and the reporting of reserves to the IMF were delayed.

For many years before 1994, the Mexican government announced its total reserve data three times a year: first, in the Bank of Mexico's annual report (issued in the spring); second, at the Mexican Banking Association conference (usually held in the summer); and, finally, in the president's State of the Union address (given on November 1).

The tradition was broken in 1994. The Bank of Mexico's report for 1993 was issued at the beginning of April. It contained reserve data for 1993, but no data for 1994. No further official announcements on reserves were made until the Mexican Banking Association conference was held on October 19, 1994. At this conference, Mexico's reserves as of October 19 were announced. It was unusual for the banking conference to be held as late as the middle of October. In 1992 and 1993, the conference was held in late August and early September, respectively. Since, by law, the State of the Union address must be given on November 1, the banking conference could not have been held much later than it was in 1994. In the State of the Union address on November 1, reserves as of October 31, 1994, were announced. This figure was not substantially different from the figure announced at the banking conference two weeks earlier.

Mexico also delayed reporting international reserves to the IMF in 1994. In the three years before 1994, Mexico's international reserve data for April were published in the September *IFS*, and June reserve data were published in the November *IFS*. In contrast, in 1994, the September *IFS* contained only data through March 1994, and new data on reserves were not published until December. Since no official announcements of Mexico's 1994 reserves were made until October 19, before that date, the releases to the IMF were the only data available on reserves in 1994.

If Mexico had never previously delayed either its official announcement at the banking conference or its data reports to the IMF, then the delays in 1994 could almost certainly have been interpreted as an attempt to withhold bad news. However, we note some random variation in the timing of both the banking conference and the IMF reports.

During the years 1989–92, the banking conference was usually held in August. However, in 1993, as we have seen, the conference was held in the first week of September. And in 1991, the conference was held in the first week of October. Thus, the 1994 conference was later than in earlier years, but not much later than in 1991.

From the beginning of 1989 until September 1994, the IMF usually published Mexican international reserves with a lag of about five months. However, there were significant random variations in this lag. By November 1994, the lag in publishing reserves in *IFS* was eight months. However, a longer lag had occurred once before: in the summer of 1993, reserves were published with a lag of eleven months. When the data were finally released in 1993, they showed an increase in reserves. So past Mexican releases of reserve data through *IFS* might have convinced a reasonable investor that the delays in the fall of 1994 were only logistical delays and not worth worrying about.[4]

### *No Leaks or Lack of Confidence*

If the level of Mexico's reserves could have been easily guessed from other information, then neither Mexico's standard practice of releasing data three times a year nor the apparent delays in releasing data in 1994 would have had much of an effect on investors' decisions. But press accounts strongly suggest that investors did not know the level of Mexico's reserves when they made their investment decisions between April and October of 1994, when they continued to show confidence in the Mexican economy.

When Mexican and U.S. officials met in Washington, D.C., to arrange for emergency financing in the spring of 1994, they held a press conference, on April 26. During this press conference, Mexican officials were asked about the current level of international reserves, but the officials would not disclose it. According to one report, "When someone asked [Mexican Finance Minister Pedro Aspe] how [the lending agreement] would affect the level of Mexico's reserves, he refused, point-blank, to say how much Mexico had in reserves. He said . . . that the central bank was now independent: yet he refused to let [Governor of the Bank of Mexico Miguel] Mancera answer" (Latin American Newsletters, Ltd., 1994a, p. 1).

Press reports speculating about Mexico's reserves at that time show that leaks did not fully inform investors about the state of reserves. For example, the *New York Times* reported in April that "the Bank of Mexico's own foreign capital reserves are reported to exceed $25 billion" (DePalma 1994, p. D1).[5] Reserves were actually less than $18 billion when this article was published.

Information about reserves was so scanty that when the level of reserves was announced on October 19, another report said, "The Banco de Mexico finally came clean. On 19 October the governor of the central bank, Miguel Mancera, revealed that Mexico's reserves had fallen to US $17.2 [billion] in mid-October. This means that since the end of 1993 the reserves have fallen by 29% . . . . The substantial decline in reserves shows how nervous [international financiers] have become . . . . The risk of investing in Mexico is rising sharply" (Latin American Newsletters, Ltd., 1994b, p. 1).

Before October, the lack of information about Mexican reserves did not diminish foreign investor confidence following the Colosio assassination in March 1994. The strongest evidence of this is provided by data on net portfolio investment in Mexican securities. According to quarterly *IFS* data, net foreign portfolio investment was strongly positive in both the second and third quarters of 1994. *IFS* data also show that foreign portfolio investment turned strongly negative in the fourth quarter, when bad news about Mexican reserves was announced.

Continued investor confidence in the second and the third quarters of 1994 suggests that the delays documented above were not interpreted as a clear signal of bad news.

### *Implications of Delay*

Without public statements from current or former Mexican officials, we cannot know whether the delays we have documented were strategic or logistical. To make a case that delays could have been strategic, however, we develop an economic model. One feature of our model is that a delay for whatever reason can have bad implications for a country. Here we justify that modeling assumption.

By 1994, Mexico and other Latin American countries were dependent on new sources for international capital: mutual fund managers and other foreign securities investors. Between 1989 and 1992, 40 percent of all new foreign investment in Latin America came from securities investors, up from 15 percent between 1977 and 1981. In contrast, commercial banks provided 14 percent of new Latin American investment between 1989 and 1992, down from 67 percent in 1977–81.[6]

Mutual funds largely filled the investment vacuum caused by many banks' unwillingness to lend to Latin American countries after the banks' large Latin American debt losses in the mid-1980s. But mutual fund investment in Mexico and other countries brought with it a price: a demand for short-term performance. In the past, foreign banks had been rather patient in their lending. But mutual fund managers brought the same demands to Latin American finance ministers that they had brought to U.S. companies: perform now, or the money is gone. Mutual fund managers recognized that their investors dump underperforming funds quickly; they do not stick around for long-term results. (See Goetzmann, Greenwald, and Huberman 1992.)

In 1993, for instance, international mutual fund managers invested heavily in Turkish stocks and bonds. After an Islamic political party won some municipal elections in early 1994, the Turkish lira and the dollar value of the Turkish stock market plummeted. As a result, many money managers sold their Turkish asset holdings. (See Torres and Vogel 1994.) Investment inflows then stopped. (See June 1996 *IFS*.)

Given such experience, in Turkey and other emerging markets, Mexican officials had good reason to be concerned that releasing bad news about international reserves could have a substantial effect on foreign investment.

## The Model

Above we have documented that there was bad news about international reserves and that the release of this bad news was delayed. However, this delay seems to be within the range of the market's expectations based on its experience with Mexican reporting practices. Now we present a model which demonstrates that the Mexican government may have had an incentive to delay the release of bad news.

### *Sequence of Events*

Our model has two agents: a lender and a country.[7] The lender in our model makes two decisions. First, it decides whether to make a loan to the country. We assume that the lender can get a safe, or risk-free, return of $R_f > 0$ elsewhere. Moreover, competition among lenders ensures that a lender will only make a loan to the country if it receives an ex ante return of $R_f$. Second, the lender can decide to liquidate the project at an intermediate date. This later decision is made with the goal of maximizing expected returns. At the time the loan is made, both the lender and the country believe that the project will succeed with probability $\theta$, $0 < \theta < 1$.

We assume that the country is risk averse and seeks to maximize expected utility. The country takes the proceeds from the loan it receives and invests them in a risky project with a fixed size. Over the course of the period, the country learns whether or not the project will succeed. The only decision the country makes is whether or not to disclose this information to the lender.

For simplicity, we assume that project quality is limited to two extremes: good or bad. *Good* projects, if completed, yield an output of $x$. *Bad* projects, if completed, yield an output of zero. We assume that the country can disclose good news if it observes good news, can disclose bad news if it observes bad news, or can choose not to disclose. Even if the country decides to disclose its information, logistical delays may prevent the lender from receiving this information.

Chart 2 shows the sequence of events for the lender and the country. At the beginning of the period, the lender transfers one unit of resources to the country. The country then invests the resources in a risky project. On the reporting date, the country observes either good news or bad news about the project. At this point, the country decides whether to disclose this information to the lender. Whether or not the country makes a disclosure, logistical delays may occur, and if they do, the lender receives no news. The probability of logistical delay, $p$, is assumed to be independent of the success or failure of the project as well as of the country's disclosure decision. Based on the information the lender receives on the reporting date, it decides whether or not to liquidate the project immediately. If the project is liquidated, the lender receives the liquidation value, $L$, of the project and the country receives nothing. This liquidation value is independent of the quality of the finished project. If the project is not liquidated, then it is completed. Upon completion, good projects yield $x$ units of output and the country repays $R$ to the lender. In this case, the country's consumption is $x - R$. Bad projects that are not liquidated by the lender are assumed to be liquidated by the country, which consumes $L$, the liquidation value, and repays nothing to the lender. We assume that the liquidation value is small relative to the potential of the project. (That is, $L < x$.) The accompanying table shows how the probability of project success interacts with the probability of logistical delay and the country's disclosure decision.

### *Equilibrium*

Next we outline our notion of equilibrium. We first define the strategies of the country and the lender. We then define the conditions necessary for the strategies to constitute an equilibrium.

A *strategy* is a complete plan that prescribes the actions the country (or the lender) will take as a function of what it observes. The country observes either good news or bad news about its investment project. The country's strategy specifies what disclosure, if any, it will make to the lender in either of these contingencies. The lender receives the disclosure made by the country or observes the fact that there is no disclosure, and it then chooses whether or not to liquidate the project. Thus, the lender may receive good news, bad news, or no news. Recall that when the lender receives no news, delay can be either logistical or strategic. The lender's *liquidation strategy* specifies, for each of these three events, whether or not it will liquidate the project.

A country's *disclosure strategy* specifies the report the country will make when it observes good news or bad news. Not all disclosure strategies are feasible, since the country cannot claim that it has observed good news when it actually observed bad news, or vice versa, but it can al-

ways delay by disclosing nothing. Thus, when the country observes good news, it may either disclose good news or disclose nothing. When the country observes bad news, it may either disclose bad news or disclose nothing.

An equilibrium is a return, $R^*$, a disclosure strategy for the country, $D^*$, and a liquidation strategy for the lender, $l^*$, that satisfy the following three conditions:

- Given $R^*$ and $D^*$, $l^*$ maximizes expected returns for the lender.
- Given $R^*$ and $l^*$, $D^*$ maximizes expected utility of the country.
- Given $D^*$ and $l^*$, $R^*$ is such that the lender's expected returns from lending to the country equal $R_f$.

The first two conditions ensure that each agent's strategy is a best response to the other agent's strategy.[8]

### *Strategic Delay*

Now we show that strategic delay in disclosing bad news can be supported as an equilibrium for a wide range of parameters. The properties of the equilibrium vary, depending on the parameters. We identify two cases. The main difference between the two cases is the liquidation strategy followed by the lender. In the first case, liquidation never occurs in equilibrium. The project is so potentially profitable that the lender does not liquidate the project even if the disclosure of news about the project is delayed. In the second case, liquidation occurs in equilibrium if the disclosure of news about the project is delayed. Here the project is not as potentially profitable as in the first case.

□ *Case* 1: *Equilibrium With Strategic Delay and No Liquidation*

*Remark.* Suppose that

(1) $[p/(p\theta+1-\theta)]R_f > L.$

Then the equilibrium has these strategies:

1. If the country observes good news, it discloses the good news. Otherwise, it discloses nothing.
2. If the lender receives bad news, it always liquidates the project. Otherwise, it never liquidates the project.

Note first that the country is weakly better off following strategy 1 than any other strategy if the lender is following strategy 2. To see this, note that if the lender is following strategy 2, then the country receives nothing by disclosing bad news, since that disclosure will trigger liquidation of the project. Therefore, the country is always better off disclosing nothing if it observes bad news.

Before we can compare the lender's expected returns from alternative strategies, we have to first calculate the probabilities of the various outcomes conditional on the country following strategy 1.

If the country follows strategy 1 and the lender receives good news, then the lender knows for sure that the project will succeed.

If the country follows strategy 1, then events $G$ and $H$ in the table will never occur because the country will always delay disclosing bad news. Events $A$ and $B$ will never occur because the country will always disclose good news. Thus, if the lender receives no news, then event $C$, $E$, or $F$ must have occurred. The probability that the project will succeed when the lender receives no news is the ratio of the probability of event $C$, $p\theta$, to the sum of the probabilities of events $C$, $E$, and $F$, which are, respectively, $p\theta$, $p(1-\theta)$, and $(1-p)(1-\theta)$. Thus, as shown in the table, the lender believes that the conditional probability of the project's success if the lender receives no news is

(2) $p\theta/(p\theta+1-\theta).$

Having defined the conditional probabilities for the various events, we can now evaluate the returns for alternative actions by the lender. If the country is following strategy 1, then the lender's optimal strategy is not to liquidate when it receives good news, since $R^* > L$. If the lender's expected return from not liquidating is greater than its benefit from liquidating, then not liquidating is also the lender's optimal strategy when it receives no news. This will be true if

(3) $[p\theta/(p\theta+1-\theta)]R^* > L.$

To verify this assertion, we need to determine the value of $R^*$. Since the lender receives nothing when the project news is bad and there is no liquidation in equilibrium, the only time the lender is paid anything is when the country observes good news. Thus, the lender's expected return from the project is $R_f = (1-\theta)0 + \theta R^*$, and the equilibrium value of $R$ is given by $R^* = R_f/\theta$. When we substitute the value of $R^*$ into (3), we find that $[p\theta/(p\theta+1-\theta)]R^* = [p/(p\theta+1-\theta)]R_f$, which is greater than $L$ by assumption.

This substitution establishes that the lender will indeed prefer not to liquidate when the lender receives no news. We have thus shown that the pair of strategies described in Case 1 does indeed constitute an equilibrium.

□ *Case* 2: *Equilibrium With Strategic Delay and Liquidation*

*Remark.* Suppose that

(4) $[p/(p\theta+1-\theta)]R_f < L.$

Then the equilibrium has these strategies:

1. If the country observes good news, it discloses the good news. Otherwise, it discloses nothing.
2. If the lender receives no news or bad news, it always liquidates the project. However, if the lender receives good news, it does not liquidate the project.

As we noted above, the country always discloses nothing when it observes bad news. The country also strictly prefers to disclose good news to avoid liquidation, because $x > L$. Therefore, the lender receives no news only if the country observes bad news and chooses to strategically delay disclosing it or if there is a logistical delay. In Case 2, delayed disclosure of bad news does not deter liquidation.

Consider next the lender's strategy 2. If the country is following strategy 1, then the lender's optimal strategy is to never liquidate the project when it receives good news. As shown in the table, if the lender receives no news, the lender believes that the conditional probability of the project's success is again

(5) $p\theta/(p\theta+1-\theta).$

For the lender's liquidation strategy to be a best response to the country's disclosure strategy, the lender's benefits from liquidating the project when it receives no news must exceed the expected return from continuing with the project. That is,

$$(6) \qquad [p\theta/(p\theta+1-\theta)]R^* < L$$

so the lender always liquidates when it receives no news. However, we need to know the value of $R^*$ before we can verify that condition (6) holds.

The value of $R^*$ must be such that the expected ex ante return to the lender in equilibrium is the risk-free rate $R_f$. If the country observes good news, it discloses it truthfully. The lender sees this disclosure with probability $\theta(1-p)$ and receives a return of $R^*$. If the country observes bad news, it discloses nothing and the lender liquidates. If a logistical delay occurs and the lender receives no news, the lender also liquidates. Liquidation yields $L$ to the lender and occurs with probability $1 - \theta(1-p) = 1 - \theta + p\theta$. Thus, the return to the lender is

$$(7) \qquad \theta(1-p)R^* + (1-\theta+p\theta)L = R_f$$

or

$$(8) \qquad R^* = [R_f - L(p\theta+1-\theta)]/[\theta(1-p)].$$

Therefore,

$$\begin{aligned}(9) \qquad & [p\theta/(p\theta+1-\theta)]R^* \\ & = [p\theta/(p\theta+1-\theta)]\{[R_f - L(p\theta+1-\theta)]/[\theta(1-p)]\} \\ & = [p/(1-p)]\{[R_f/(p\theta+1-\theta)] - L\}.\end{aligned}$$

This expression is less than $L$ if

$$(10) \qquad [p/(1-p)]\{[R_f/(p\theta+1-\theta)] - L\} < L$$

which can be shown to be equivalent to

$$(11) \qquad [p/(p\theta+1-\theta)]R_f < L.$$

Thus, the lender indeed prefers to liquidate when the country does not disclose good news.

Notice that $R^*$ is lower in this case than in Case 1. We can also establish that the set of parameters in which Case 2 applies is disjoint from that in which Case 1 applies.[9]

## Conclusion

In this article, we have documented a delay in the release of Mexican international reserve data in the months before Mexico's debt crisis at the end of 1994. We have also presented a model which demonstrates that the country may have had an incentive to delay the disclosure of bad financial news.

If we now compare the results of the model with the facts described earlier, we see two reasons to think that Case 1 is more relevant to the Mexican crisis. One is that, in the wake of NAFTA, investors thought potential profits from investing in Mexico were large. In the language of our model, the returns on a good project were high. The other reason to think that Case 1 applies here is that the delays we documented were not followed by a large immediate drop in foreign investment: investors did not liquidate. We cannot say that the Mexican government's delays in releasing data were strategic. However, our model explains why Mexico might have delayed the release of bad news without triggering a liquidation: investors may not have been able to distinguish between logistical and strategic delay in the release of information about an investment with a high expected return.

Besides the issue of delay we have focused on here, the Mexican financial crisis raises some fascinating questions. Among them: After the crisis, the Mexican government changed its data reporting practices drastically; why? Was this a change for the better? What actually caused the financial crisis? And how could it have been prevented? We suspect that, as answers to these questions are sought, the issue of delay in releasing bad financial news will continue to be of great importance.

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[1]See, for instance, Kraft 1984 for a detailed discussion of the problems Mexico faced due to a shortage of international reserves in 1982.

[2]We are not suggesting here that the withdrawal of Carpizio's resignation caused the recovery of international reserves.

[3]Although the presidential election was held in August, it had no noticeable effect on reserves.

[4]Mexico now reports its reserves weekly on the World Wide Web at http://www.shcp.gob.mx/english/info/html/mex22b.html.

[5]For a more detailed analysis of published guesses of Mexican reserves in 1994, see Gil-Díaz and Carstens 1996.

[6]All the statistics in this paragraph are from Torres and Vogel 1994.

[7]The model we consider is related to three previous studies. Grossman 1981 describes a set of conditions in which the lender can infer the country's private information. Dye 1985 and Jung and Kwon 1988 develop models in which the disclosure of private information may be effectively delayed, but these models assume no conflict of interest between the two parties.

[8]We say *a best response* rather than *the best response* to allow for ties.

[9]In the interest of brevity, we omit a discussion of parameterizations that lie on the boundary between Cases 1 and 2. These parameterizations represent a knife-edge case where $pR_f = L(p\theta+1-\theta)$.

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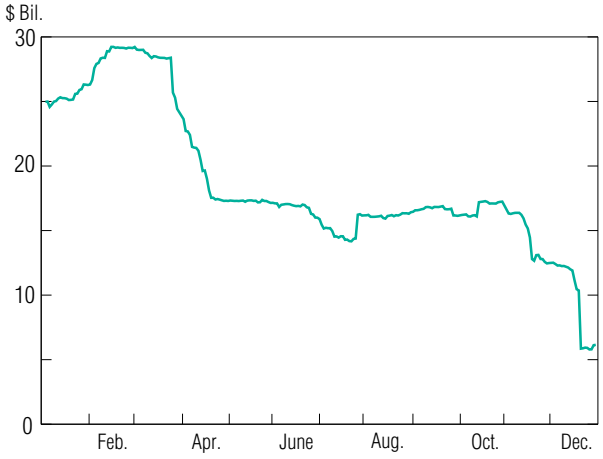
Chart 1

Mexican International Reserves

Daily, 1994




Source: Bank of Mexico

Chart 2

Sequence of Events in the Model

| Beginning of the Period | Reporting Date | End of the Period |
| --- | --- | --- |
| The country borrows from the lender and promises to repay *R*.<br><br>The country invests in a risky project. | The country observes good news or bad news.<br><br>The country makes its disclosure decision.<br><br>Logistical delays may occur with probability *p*.<br><br>The lender chooses whether or not to liquidate the project for cash flow *L*. | If the project is continued, it either succeeds (cash flow *x*) or fails (cash flow 0). |

Interaction of Probabilities and Decisions in the Model

| Project Outcome | Country's Disclosure Decision | Logistical Delay | Information Lender Receives | Event |
|---|---|---|---|---|
| Project Succeeds (prob. $\theta$) | No News | Yes (prob. $p$) | No News | *A* |
| | | No (prob. $1-p$) | No News | *B* |
| | Good News | Yes (prob. $p$) | No News | *C* |
| | | No (prob. $1-p$) | Good News | *D* |
| Project Fails (prob. $1-\theta$) | No News | Yes (prob. $p$) | No News | *E* |
| | | No (prob. $1-p$) | No News | *F* |
| | Bad News | Yes (prob. $p$) | No News | *G* |
| | | No (prob. $1-p$) | Bad News | *H* |