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Japan

Economics

# Japan Economics

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Economic Trends

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## *Cobwebs and CRICs*

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- **Natural consequence of complacency is a return to crisis**  
Without policy responses that prevent improvement from generating complacency, the CRIC cycle will continue. Current proposals on banking reform appear to be inadequate.
  - **Back in the Crisis phase**  
Japan has suffered three CRIC cycles over the last decade, and is now once again firmly in the Crisis phase, and is starting a fourth.
  - **Permanently high growth requires a permanent rise of reform metabolism.**  
The Cobweb model provides a framework for examining the relationship between growth and reform. Demand support may be destabilizing. A permanent rise of growth requires an increased metabolism of reform at all levels of growth.

## Cobwebs and CRICs

Over the last year, I have analyzed the Japanese economy in the framework of the CRIC cycle. This cycle looks at the interaction of the speed of growth and the speed of reform, and identifies a progression of phases, from Crisis to Response, to Improvement, and Complacency. The natural consequence of complacency is a return to crisis. Without policy responses that prevent improvement from generating complacency, the cycle continues. Japan has suffered three CRIC cycles over the last decade, and is now once again firmly in the Crisis phase, and is starting a fourth. It is thus well worth asking at this point whether the CRIC cycles are likely to continue.

The amplitude and period of the CRIC cycle for any country are influenced by many exogenous factors such as technology and global growth. Most important, however, are domestic factors, in particular the quality of the policy response and the sensitivity of the economic growth to structural reform policies. To examine the relationship of growth and reform, however, the first requirement is an analytical framework.

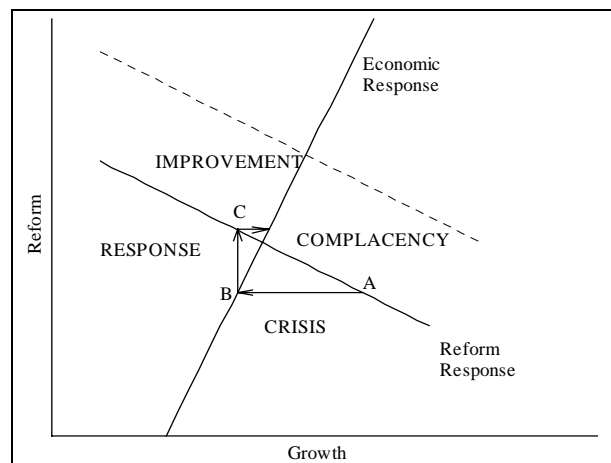
### The Cobweb Model

A good framework for analysis is the Cobweb Model, dating from the 1930s. In this model, developed to explain the explosive volatility of some agricultural prices, the key features are (1) the lag between demand for a good and the supply response, and (2) the difference between the price elasticities of demand and supply. For example, if demand depends on today's price but supply today depends on the price in an earlier period, demand and supply can be out of phase. When supply elasticity exceeds demand elasticity, suppliers overreact and price fluctuations become explosive. In contrast, when supply elasticity is less than demand elasticity, supply responses are muted and prices eventually converge to equilibrium.

The same features work, in slightly different format, in the CRIC cycle. The relationship is illustrated in Exhibit 1. There are two relationships — the counterparts of supply and demand from the cobweb model. The first is the reform response function, which gives the response of reform policies to current economic growth. When growth is high in the current period, reform is low, and *vice versa*. Thus, the reform response function slopes downward. The second relationship is the economic response function, which gives the response of economic growth today to reform measures

taken in the past. Since economic growth rises as a result of past reforms, this line slopes upward. (The algebra of this relationship is given in the Appendix.)

Exhibit 1  
Phase Diagram of the CRIC Cycle



Source: Morgan Stanley Dean Witter Research

### Demand support is destabilizing

The exhibit illustrates why demand-support policies may be destabilizing. Say that the government adopts a demand stimulus plan. This raises growth, but lowers reform, and takes the economy to point A. In the next period, the lower level of reform will reduce growth, taking the economy to point B. From here, because of low growth, the government agrees to somewhat faster reform policies, which take the economy to point C. Responding to the increase of reform, economic growth rises. The interaction between reform and growth continues, until the economy reaches an equilibrium point where the two lines cross.

Note that a temporary increase of reform (i.e., a movement along the original reform response line) will not result in a permanently higher growth rate. It is only when the reform response curve shifts upward that a higher equilibrium growth rate is reached.

### The Japanese Case

This model explains a great deal about Japanese economic history over the last decade and more. The Mayekawa plans of the late 1980s were temporary moves *along* the reform response curve. Once growth rose (due in part to the bubble economy), reform slowed. The policies of the 1990s

included first attempts to push the economy upward with demand stimulus, which temporarily shifted the economy to higher growth. However, once higher growth was achieved, the old reform response curve took over. Growth and reform fluctuated until both returned to the lower equilibrium. To be fair, several sets of supply side policies were taken, and were effective. However, for the most part, these policies moved Japan along the reform response function, and did not change the position of the reform response curve.

In the terminology of this model, the key for sustained Japanese recovery is to shift the reform response curve upward and flatten its slope. An upward shift of the curve requires a fundamental reorientation of policy, away from the interest group politics of the last 50 years. It is precisely the juggling of interest groups that sandbags reform initiatives, and prevents the reform response line from shifting upward permanently.

In light of recent policy proposals by the ruling coalition, most of which are warmed-over procrastination, if not outright backsliding, an upward shift of the reform response curve is not in sight. Indeed, in light of recent policy developments such as the public buy-up scheme for bank cross holdings, investors may conclude that the reform response line has actually shifted downward. Asset markets may react positively in the short run, out of relief that the government is not totally paralyzed after all. However, in a short time, investors are likely to see through the nature of the new policy package, and to adjust asset prices to an even lower equilibrium growth rate.

#### Appendix: The CRIC Cycle in Symbols

The algebra for the model described in the text follows: There are two key relationships, the response of the reform to growth (reform response function) and the response of the economy to past reform actions (economic response function). Denote the amount of reform by  $r$  and the growth rate of the economy by  $g$ . These two relationships may be specified as:

- 1)  $r(t) = a - bg(t)$  (Reform response function)
- 2)  $r(t-1) = c + g(t)$  (Economic response function)

Note that in equation (2), the left-hand variable is lagged one period, to capture the idea that growth today responds to reform yesterday. Solving equation (2) for  $g(t)$  and substituting the result into equation (1) generates

$$3) r(t) = [(ad+bc)/d] - [b/d] r(t-1)$$

This is a differential equation in reform. The equation for growth in any given period is a complex function of reform in earlier periods and the values of the parameters  $a$ ,  $b$ ,  $c$ , and  $d$ . The value for growth at a given time is best derived from plugging the value of  $r(t)$  into equation (2). Note also that, in more complex forms of the model, the parameters may shift over time.

The algebra has several important lessons. First, the relationship between reform and growth settles to a stable equilibrium if and only if parameter  $b$  is smaller in absolute value than parameter  $d$ . The (downward) slope of the structural policy response function must be flatter than the (upward) slope of the economic response function, for the stable equilibrium to exist. Otherwise, reform policies and growth rates swing in ever larger cycles.

Second, a sharp response of reform to a worsening of the economy (high value of parameter  $b$ ) is actually destabilizing. The reason for this is that high values imply not only that reform goes up when the economy weakens, but also that reform goes down when the economy strengthens.

Third, raising the equilibrium growth rate of the economy requires a shift of the reform response function upward. One-off reform policies peter out over time, because the improvement of growth causes the reforms to be reversed in subsequent periods.

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