

# *Inflation, Asset Markets, and Economic Stabilization: Lessons from Asia*

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**I**n the 1980s, a new convention emerged in the economics profession—that central banks’ primary, or even single, responsibility should be controlling consumer price inflation. Such a view, in various forms, has been around for a long time.<sup>1</sup> But the idea gained broader acceptance as the dramatic rise in world inflation during the 1970s, coupled with a broad deterioration in economic performance, seemed to highlight the pernicious effects of rapidly rising prices, just when various theoreticians were arguing that monetary policy was prone to an inflationary bias. Moreover, while aggressive efforts to combat inflation by the Volcker Fed and central bankers in Japan and Germany led to recession in the early 1980s, the output costs of disinflation were not as severe as many had feared and the subsequent recovery and expansion in both the United States and Japan reinforced the notion that if only consumer price inflation could be brought under control, economic growth would take care of itself.

By the 1990s, this view was gaining credibility within policy circles, and various countries mandated that their central banks make inflation their primary, if not their sole, focus—although these mandates usually contain an escape clause for an economic shock that affects employment and growth severely.<sup>2</sup> New Zealand and Canada were two leaders in this regard. Meeting a low inflation target also became a major criterion for joining the European Monetary Union, and ensuring price stability is now the main goal of the European Central Bank. Moreover, while the concept of inflation targeting originated in the industrial world, governments in many developing countries now adopt annual inflation targets, and achieving low inflation is widely perceived as a sign of “success” under IMF surveillance and in international capital markets.<sup>3</sup>

Here in the United States, this orthodoxy has never gained official status, although legislation advocating an inflation target was proposed.<sup>4</sup> Rather, the U.S. policy goal remains promoting stable long-term growth,

and the policy approach remains eclectic. (Of course, even in countries with an inflation target, like Britain and Germany, policymakers admittedly watch and react to a variety of indicators as practicality requires.) Nonetheless, the strong performance of the United States during the mid 1990s, with inflation declining

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even as the unemployment rate fell below most estimates of full employment, seemed to reinforce the case for a focus on price stability.

That Japan had experienced a severe recession early in this decade that was not preceded by a significant rise in inflation was not generally seen as a challenge to this view. Although the country had

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<sup>1</sup> This focus on consumer price inflation stems from the belief that monetary policy can have no effect on real variables over the long run. It is closely akin to the monetarism that Milton Friedman and his colleagues forcefully and eloquently espoused in the 1960s and 1970s in that both offer a relatively straightforward, rules-based approach to policy. While monetarism's simplicity had great appeal, innovation in the financial services industry during the 1980s (for example, the development of money market and sweep accounts and the resulting blurring of distinctions between bank and non-bank financial institutions) increased the variability of velocity and made the monetarist approach impractical for policy purposes. Kindleberger (1978) links monetarism, in turn, to the Currency School of the early 1800s. Thus, the current focus on the consumer price index draws on a long legacy.

<sup>2</sup> For example, Stanley Fischer (1996) has suggested that "long-run price stability should be the primary goal of the central bank, with the promotion of full employment and growth being permitted to the extent that they do not conflict with the primary goal." And Goodhart and Viñals (1994) have documented that price stability has become the central bank's primary objective throughout Europe, Canada, and Australia/New Zealand. But, of course, many economists disagree with this prescription, recommending instead that central banks look at both prices and output or at nominal GDP. Moreover, as noted in the text, most statutes that require the monetary authorities to follow an inflation target contain an escape clause in the event that major supply shocks have a severe impact on employment and growth.

experienced an asset price "bubble" to which monetary policy mistakes may have contributed, Japan's ongoing problems were widely laid at the door of a directed model of industrial development that had outlived its usefulness; an unwillingness to deal decisively with its banks' bad loan problems; and more recently, an overly stringent fiscal policy as the economy struggled to recover.

Now, however, world policymakers are dealing with a currency and financial crisis in East Asia that has produced serious recessions in South Korea, Indonesia, Thailand, and Malaysia; threatens their neighbors; and is adversely affecting trading partners and other nations seemingly far removed.<sup>5</sup> Yet the Asian countries had not previously experienced any pronounced acceleration in consumer price inflation; nor had they suffered the deterioration in their fiscal position or other economic "fundamentals"

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<sup>3</sup> For example, in 1995 Michael Bruno, then chief economist of the World Bank, wrote, "Very low inflation is again becoming the norm, not only in the industrial world but also in developing regions." After discussing stabilization strategies, like fiscal retrenchment, exchange rate pegs, currency boards, and wage freezes, he argues that "getting inflation down to single digits is important . . . for long-term growth reasons" and cautions that "the upward bias of inflationary persistence argues for keeping the inflation genie tightly in the bottle" (Bruno 1995). In the opening of its May 1997 *World Economic Outlook*, the International Monetary Fund approvingly sees "few signs of the tensions and imbalances that usually foreshadow significant downturns in the business cycle: global inflation remains subdued, and commitments to reasonable price stability are perhaps stronger than at any other time in the postwar era . . ." (The same overview warns of potential dangers posed by fragile banking systems exposed to large foreign exchange risk by large and possibly unsustainable capital inflows.) Later, the IMF writes, "In Chile, the most *successful* economy in (Latin America), inflation fell to a 36-year low of 6½ percent . . ." (italics added). Rudiger Dornbusch has also described Chile's approach as "exemplary" as it brought annual inflation down from 30 percent in the mid 1980s to 7 percent in the mid 1990s—in part because "the central bank has refused to overreach and squeeze inflation down to the fashionable 2 percent of the industrialized countries." He contrasts Chile with Mexico where he sees "exaggerated emphasis put on inflation, exaggerated urgency to get to 2 percent, dangerous imperviousness to overvaluation." He concludes, "The right message is that inflation must come down and that there is never room for complacency; that is not the same as inflation reduction first, growth later" (Dornbusch 1996).

<sup>4</sup> *The Economic Growth and Price Stability Act of 1997* was sponsored by Florida Senator Connie Mack. The bill proposed that an explicit numerical definition of price stability be established, and that the promotion of long-term price stability, so defined, should be the sole mandate of the Federal Reserve System.

<sup>5</sup> As of mid 1998, Hong Kong, Malaysia, Indonesia, Thailand, South Korea, and Japan report that their economies have been shrinking since the beginning of the year, Japan by a stunning annual rate of 5.3 percent in the first quarter. Those East Asian economies that managed to maintain some momentum, Taiwan and Singapore, have nonetheless slowed as well. The Philippines economy now has a negative growth rate.

most commonly viewed as forerunners of financial crisis.<sup>6</sup>

The recent problems in East Asia, as well as the earlier one in Japan, raise the question of whether such a concentrated focus on consumer price inflation has become tunnel vision, dulling the sensitivity of policymakers and market participants to other signs of overheating. This article argues that the focus on consumer price inflation may indeed have been too narrow. Drawing upon the crises in Japan and other Asian countries, with reference to comparable episodes in the United States, it suggests that a preoccupation with inflation may have lulled policymakers and investors, both domestic and foreign, into ignoring useful signals from stock, real estate, and currency markets and from emerging imbalances in the real economy. Whether such imbalances would have

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been better addressed by monetary policy or by improved disclosure, supervisory intervention, or tax policy, a broader perspective might have identified problems in Asia at an earlier stage, before they assumed such crippling proportions. As it was, widespread recognition of Asia's relatively good inflation and fiscal performance may have provided unwarranted comfort.

The first section of this article discusses the "normal" relationship between inflation and economic activity seen during much of the postwar period in the United States, while the second section contrasts this familiar background with the recent experience of Japan and the "Asian Tigers" currently in crisis. The third section explores developments in Asian asset markets in more detail. The discussion focuses on Japan and South Korea, the largest of the crisis-ridden

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<sup>6</sup> Many investors and policymakers—both monetary and supervisory—apparently ignored other, less standard signs of trouble, like soaring ratios of foreign-currency debt to GDP and questionable levels of investment in certain asset markets and industrial sectors. The fact that these countries did not display the symptoms—rapid inflation and large fiscal deficits and "excessive" consumption relative to GDP—seen in the Latin American economies on the brink of their crises was seemingly reassuring.

countries, with Japan illustrating the perils of rapid increases in asset prices and South Korea the more subtle dangers of excessive investment. The text also highlights the role of the shift from directed to (partially) liberalized financial markets, both in contributing to these excesses and in exposing them to the market's unforgiving judgment. Section four examines distortions in the real economy and suggests that very high levels of investment spending and an imbalance between employment growth in "nontradables" industries like construction and "tradables" industries like manufacturing may signal future problems even in the absence of consumer price inflation. Section five describes how the global context can help to reconcile divergent trends in asset and consumer goods markets. The sixth section concludes by suggesting that policymakers may want to look out for signs of overheating emanating from asset markets and from emerging imbalances in the real economy, even when consumer prices are well behaved. Signs that high levels of debt may be financing increasingly optimistic investments warrant particular concern. This final section also stresses the vulnerabilities that newly liberalized financial markets may introduce and the importance of measures that encourage the private sector to price risk more accurately and force it to bear the costs of international financial crises more fully. Overall, it advocates an eclectic approach to assessing economic performance rather than a focus on any single indicator.

### *I. Inflation, Speculation, and the Business Cycle*

The rationale for central banks' focus on inflation<sup>7</sup> has several dimensions. Not least is the strong public aversion to inflation found in many countries. To some degree, this aversion arises because high rates of inflation are frequently associated with political instability. Extreme inflation, in particular, often occurs in the context of social upheaval and political turmoil. The German hyperinflation of the 1920s is a classic instance and is generally thought to explain why the German public remains adamant that its policymakers not let inflation rise above very modest rates.

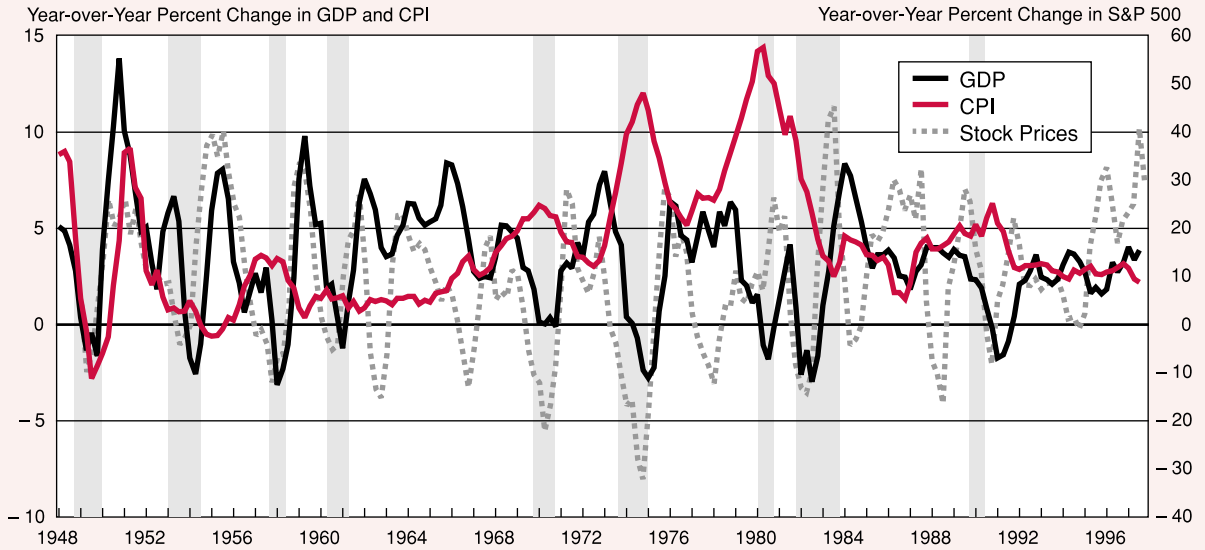
A government that allows inflation to rise to very high levels is usually ineffective in many respects; so

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<sup>7</sup> This article uses the term "inflation" to connote consumer price inflation. Price inflation in asset markets will always be referred to as "asset-price inflation."

Figure 1

*U.S. CPI, GDP, and Stock Prices*



Source: U.S. Bureau of Economic Analysis.

determining whether high rates of inflation are a cause of poor economic performance or a symptom of other problems that impinge on economic activity can be difficult. Nevertheless, numerous researchers have documented a link between high rates of inflation and poor economic outcomes. The picture is less clear at more moderate rates of inflation (Bruno 1995; Ball 1994) but plausible arguments can be advanced that even relatively low rates of inflation distort economic decisionmaking. Thus, monetary policymakers commonly justify their concern with restraining inflation in terms of the beneficial impact on economic output over the long term. They also point to the role of low inflation expectations and enhanced central bank credibility in strengthening the policymakers' hand.

But for many, the most compelling argument for vigilance against inflation is the economic pain of the subsequent disinflation. In the United States and most other countries throughout the post-World War II era, rising inflation has preceded most recessions. As can be seen in Figure 1, quickening inflation in the United States in the late 1960s was followed by the recession of 1970–71; the much sharper rise in the early 1970s was followed by the deep recession of 1973–75, and

the still steeper acceleration in inflation in the second half of the decade was followed by two recessions in the early 1980s, the second of which was very severe. Inflation picked up more gradually in the late 1980s, and the relatively mild recession of 1990 to 1991 ensued. Germany and the United Kingdom show similar patterns, as can be seen in Appendix Figures 1a and 1b.

To say that the acceleration in inflation “caused” the recessions would not be accurate. Rather, rising inflation led to tighter monetary policy, and the ensuing downturn brought about a slowing in inflation. In most cases, an unexpected shock also played an important role in bringing on the recession—in the United States, a major auto strike in 1970, the confrontation with Iraq in 1990, and most dramatic of all, the spikes in oil prices in 1973 to 1974 and again in 1979. The last involved oil shortages that not only drove inflation to yet higher levels but also disrupted economic activity, contributing directly to the downturn.<sup>8</sup>

<sup>8</sup> Like any major supply shock, a sharp shift in oil prices pushes employment and price trends in opposite directions, creating a dilemma for monetary policy. But in the 1970s, U.S. inflation

The lesson many have taken from this experience is that central banks should pay close heed to inflation and act promptly to forestall increases. By so doing, they can avoid the need for more aggressive action later and spare the economy the severe fluctuations suffered in the past. Even those who might otherwise have tolerated somewhat higher rates of inflation or been tempted to exploit a possible short-term trade-off between inflation and unemployment seem to have accepted the argument that resisting inflation in the present helps avert economic disruptions in the future.

The present-day focus on inflation contrasts with much of the past thinking about business cycles, which gave considerably greater emphasis to the role of investment and speculation in the prices of stocks, real estate, and other assets.<sup>9</sup> Thus, Irving Fisher, in the wake of the Great Depression, placed a good deal of the blame on an excess of debt. Such excesses commonly followed an earlier period when technological, regulatory, or financial innovations improved the environment for investment. The initial period of rational growth in investment then spiraled into a “euphoric” phase of overinvestment and overborrowing. Businesses and investors, in turn, sought to grow their way out of their heavy debt burdens through speculation, often worsening their financial positions in the process. Eventually, some event, perhaps a rise in interest rates or an increase in credit rationing, would lead to a retrenchment in which financial intermediaries called in loans, forcing borrowers with insufficient liquidity to go bankrupt. The subsequent deflation, in both asset and goods prices, further aggravated the circumstances of debtors and their creditors and intensified the downturn.

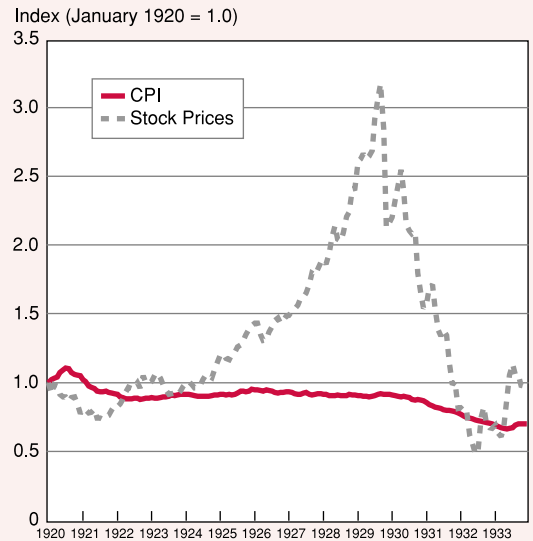
Figure 2 shows the sharp run-up in stock prices that characterized the years leading to the Great Depression in the United States. Stock prices rose throughout the 1920s while, by contrast, consumer and wholesale goods prices drifted down slightly. The bull market gained momentum as the decade wore on, soaring in the year prior to October 1929. The rapid

probably contributed to the oil exporters’ decision to raise prices. Although the precipitating event for the first increase was the Arab-Israeli War, oil is priced in dollars and rising U.S. inflation in the early 1970s had contributed to a nominal depreciation of the dollar and a decline in the value of oil revenues in world markets. The second increase also followed an extended period of rising U.S. inflation and nominal dollar depreciation.

<sup>9</sup> In this article, asset prices refer to prices of land, real estate, financial assets such as stocks and bonds, and, on some occasions, the price of foreign currency in terms of domestic currency. Purchases of such assets are often motivated by hopes of capital gains.

Figure 2

*U.S. Consumer Price Level and Stock Price Index<sup>a</sup>*  
Monthly Data, 1920-1933



<sup>a</sup>S&P 500 Index.  
Source: NBER Macrohistory Database.

rise in stock prices was followed by an even more precipitous decline; within three years, stock prices had fallen below the level of 10 years earlier. Goods prices also fell.

Unfortunately, speculative bubbles are clearly evident only after the fact. While a marked deviation from past experience and widespread investor focus on capital gains without regard to the strength of underlying earnings may suggest to the cautious observer that a speculative bubble is under way, during the bubble eminent scholars and financiers usually emerge with plausible explanations for why circumstances have changed and why higher asset prices are justified. Fisher himself defended the valuations of financial assets in October 1929!<sup>10</sup>

Speculation in stocks does not appear to have been a major factor in the recessions of the post-World War II era, however. Stock prices have been quite cyclical, typically soaring at the start of recoveries, rising more moderately as expansions age, and then falling in the year immediately preceding a recession

<sup>10</sup> *The New York Times* of October 22, 1929 reported “Fisher Says Prices of Stocks Are Low: Quotations Have Not Caught Up with Real Values as Yet, He Declares,” page 24, col. 1. See also Carosso (1970), pages 300–302.

(Figure 1). Thereafter, stock prices have tended to recover quite rapidly, suggesting that valuations were not unreasonably optimistic. The most striking exceptions to this pattern occurred in the 1970s. Stock prices languished throughout this high-inflation period; prices only began to rise on a consistent basis as inflation came down in the 1980s.

The mid 1980s also represent a modest departure from the normal pattern. Following the recessions of the early 1980s and a huge dollar appreciation, inflation fell sharply from prior levels, and U.S. stock prices soared. However, earnings growth, especially for manufacturers, sputtered; thus, price-to-earnings ratios reached a 25-year high early in 1987. With overall economic activity accelerating and the dollar now retracing its previous climb, inflation threatened to pick up, leading the Fed to raise interest rates in the

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spring. When weak trade data and a further weakening of the dollar threatened additional rate increases, stock prices plunged over 20 percent in the fourth quarter. The Fed provided liquidity, and the economic expansion continued. Earnings growth improved, and by mid 1989, stock prices had returned to their prior level with price-earnings ratios in a more normal range. Whether or not the earlier run-up had a speculative element, it was short-circuited; and neither the run-up nor the subsequent decline in stock prices had serious consequences for overall economic activity.

Real estate is another potential vehicle for speculation, but real estate prices in the United States have followed a rather different pattern than have prices of stocks. For most of the post-World War II era, real estate values have risen faster than inflation. In contrast to stocks, real land prices rose especially fast

during the high inflation years of the 1970s.<sup>11</sup> As inflation subsided, land prices followed an erratic path, with collapsing land and real estate values implicated in several important regional financial crises. For instance, the price of farm land, which doubled in value in the second half of the 1970s, fell by 30 percent in the mid 1980s, creating severe difficulties for farmers in the Midwest and the Farm Credit banks that served them. Prices did not regain previous peaks for another 10 years.

Speculation in real estate also played an important role in the savings and loan debacle in the Southwest in the middle of the 1980s and in New England's banking crisis at the end of the decade. In both cases, and consistent with Fisher's theories, an earlier period of financial deregulation and prosperity led to increased competition in financial services and increased investment in real estate. Eventually, rising prices encouraged speculation, leading to yet higher prices, and to construction outstripping demand. When economic growth finally began to slow, in response to declining oil prices in the Southwest and a series of shocks in New England, real estate values collapsed. Highly leveraged developers were unable to meet their obligations to the local banks that had provided the bulk of the financing for these projects. Many institutions failed. While the 1990 recession was relatively mild for the country as a whole, New England experienced a 10 percent decline in employment, in large part because of the real estate and banking debacle. The Southwest also experienced a prolonged period of sluggish growth. (See Browne 1992.)

In sum, while speculation in asset markets has at times contributed to economic fluctuations in the United States, particularly in the 1980s and early in the century, most of the recessions of the past 50 years have been preceded by rising inflationary pressures. The U.S. postwar pattern has come to be viewed as the norm, leading some central bankers and many investors to discount signals from asset markets and to look primarily to consumer price inflation for evidence of overheating. (See the box "Asset Prices and Central Banks.")

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<sup>11</sup> Rising real land prices in the 1970s may reflect the fact that the baby boom cohort began forming households at that time; however, for much of the period, prices for farm properties were rising faster than prices for nonfarm, noncorporate land. The boom in prices for farm land may have been linked to the unusually sharp and temporary rise in prices for foodstuffs in the early years of the decade.

### Asset Prices and Central Banks

Arguments that central banks should pay attention to unusual increases in equity, real estate, and other asset prices per se (that is, beyond considering the impact of such swings on consumer prices through wealth and credit channel effects) commonly elicit the question: How can the central bank know better than the market the appropriate value of assets?

But the benefit of paying attention to unusually rapid or prolonged increases in asset prices does not hinge on the central bank being a more astute judge of fundamental asset values than the market—any more than the central bank is asked to judge the appropriate *level* of consumer prices. Rather, the need for the central bank to consider the implications of unusual *increases* in asset prices stems from its systemic responsibilities, a focus that may well produce assessments that differ from those appropriate for private market participants. In addition, asset price inflation may be a symptom of an overheated economy. Since consumer prices are only a subset of all transactions prices, under some circumstances, excess liquidity may find other outlets. When that outlet is rapid asset price inflation, the resulting perverse incentives may create economic imbalances that may damage the real economy. Lastly, unusually rapid and prolonged increases in asset prices pose many of the same issues for individual well-being as does consumer price inflation.

Gains in asset prices that do not seem solidly supported by earnings prospects may warrant central bank scrutiny because of the potential for a subsequent destabilizing price decline (although central banks may be able to limit the spillovers by providing liquidity, as the Fed did in 1987). For example, rapid increases in stock and real estate prices are often supported by rapid increases in bank and other forms of credit. Thus, unusual surges in asset prices may provide a warning that lenders' portfolios and underwriting standards deserve more intense scrutiny. When asset prices are rising, the most successful investors are those who are most concentrated in the assets with the greatest gains. Competition to do business with these investors can lead lenders to become dependent on these same assets and to reduce their lending standards, since successful customers can readily take their business elsewhere if they feel loan conditions are onerous.

But unfortunately, from time to time, these

risky concentrations culminate in large declines in asset prices that disrupt banking and other financial markets and contribute to serious economic downturns. To the degree that central banks see themselves as having some responsibility for financial and economic stability, they will want to respond to these developments and have a legitimate interest in forestalling them. After all, if central bankers feel compelled to offset the systemic/real impacts of a significant decline in asset prices, they may validate investor mistakes. And if investors assume that the central bank will act to offset the fallout from a major market correction, an element of "moral hazard" may creep into the equation. The appropriate preemptive response in these circumstances is likely to vary from case to case.

The main point here is that individual investors care only about their own risk exposure, but the central bank must consider the possibility that rapidly rising asset prices will have negative repercussions for the economy as a whole. Thus, the central bank's evaluation of the risks linked to various asset price paths must include the public costs and will differ from the appropriate calculation for private market participants. But admittedly, if removing the punch bowl seems hard when the concern is accelerating consumer prices, the difficulty will be even greater in the case of overheated asset prices.

Further, many of the arguments in favor of central banks' focus on consumer price inflation also apply to increases in asset prices. Central banks generally choose to target consumer rather than producer or other input prices because their ultimate concern lies in promoting consumer welfare, broadly measured, now and in the future. But fluctuations in asset prices, which affect the value of society's accumulated wealth, also matter to people's well-being, as much perhaps as changes in consumer prices. Indeed, as economic development proceeds and the ability to accumulate wealth spreads, as age spans lengthen and as individuals are increasingly asked to provide for their own retirements, avoiding large contractions in the value of wealth may gain greater importance. And just as consumer price inflation can distort economic decisions and make planning for the future difficult, so too can volatile asset prices. All told, the unfortunate consequences of "excessive" asset price inflation have a lot in common with the consequences of "excessive" consumer price inflation.

Table 1  
*Average Annual Change in Real GDP and Consumer Prices*  
 Percent

	Real GDP			Consumer Prices		
	1970–1979	1980–1989	1990–1997	1970–1979	1980–1989	1990–1997
G-7 Countries <sup>a</sup>	3.6	2.8	2.0	8.3	5.5	3.0
United States	3.5	2.8	2.2	7.2	5.5	3.3
Japan	4.6	3.8	2.1	9.3	2.5	1.5
South Korea	8.8	7.9	7.5	15.1	6.2	6.1

<sup>a</sup>The G-7 include the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada.

Source: *OECD Economic Outlook*.

## II. Growth and Inflation in Japan, Southeast Asia, and South Korea: The Recent History

This section traces the chronology of inflation and real GDP growth in troubled Asia since the early 1970s. As this review demonstrates, contrary to the postwar “norm,” a marked pickup in inflation did not herald recent downturns in Asia.

### Japan

Financial and economic difficulties in Japan through most of the 1990s and recent developments in South Korea and other East Asian countries caught much of the world by surprise. During the 1980s, Japan’s economic performance was the object of world envy. It enjoyed the fastest growth of all the G-7 industrial countries,<sup>12</sup> with growth especially strong late in the decade, despite a yen appreciation and the maturity of the expansion. Inflation also remained muted throughout the 1980s, despite Japan’s poor record in this regard in the previous decade. As Table 1 shows, from 1970 to 1979, Japan’s annual inflation averaged 9 percent, slightly above the norm for the G-7; by contrast, the Japanese CPI rose less than 3 percent a year on average in the 1980s. While inflation did edge up at the end of the decade, from roughly 0 in 1987 to 3.3 percent in 1991, such a rate was still very low by historical standards and below rates in most of the G-7.<sup>13</sup> Japan’s economy slowed sharply in 1992

<sup>12</sup> The G-7 consists of the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada.

<sup>13</sup> The modest pickup in Japanese inflation from 1989 to 1991 reflects several developments, including some one-time factors: the Japanese introduced a consumption tax in 1989; the already low unemployment rate fell even lower, from 2.8 percent in 1987 to 2.1

and has languished ever since, with growth in real GDP averaging only 1 percent per year. With fiscal stringency in 1996 and 1997 and the crisis elsewhere in Asia, Japan is now in the midst of a sharp downturn. Underlying inflation is roughly zero.

### South Korea

South Korea was commonly thought to be following the path traced by Japan, before the latter’s recent problems. As Table 1 shows, Korea enjoyed rapid growth in real GDP, averaging 8 to 9 percent, from 1970 through 1997. Over the same years, inflation was higher in Korea than Japan and fairly volatile, starting as high as 15 percent in the 1970s and falling to 3 percent for part of the 1980s. From 1990 to 1997, South Korea’s inflation averaged 6 percent—well below the standard for developing countries and just slightly above the OECD average; it fell below 5 percent in 1995 and 1996 and below 4 percent in early 1997.

South Korea’s strong economic performance was acknowledged in the fall of 1996 when it was invited to join the Organisation for Economic Cooperation and Development (OECD), a group of developed countries. OECD assessments of the Korean economy around that time indicated that difficulties in the export sector and reduced government spending would result in a slightly slower economic growth and some deceleration in inflation in 1997. Korea was also seen to face some risk from increased exposure to world capital markets and from the impact of business failures on the banking system. Nothing suggested a

percent in 1990; the yen weakened a bit in 1989 and 1990 before resuming its rise in 1991; and bad weather conditions in 1990 and 1991 aggravated the impact of the 1990 oil price increase sparked by the Gulf War. (Japan is highly dependent on imported oil.) (Government of Japan 1998.)



Table 2  
*Economic Indicators, Selected Asian Countries*

	Real GDP (percent change)				Consumer Prices (percent change)				Government Balance <sup>a</sup> (percent of GDP)				Current Account (percent of GDP)				Foreign Bank Claims <sup>b</sup> (percent of GDP)		
	1994	1995	1996	1997	1994	1995	1996	1997	1994	1995	1996	1997	1994	1995	1996	1997	End '95	End '96	End '97
All Developing Countries	6.8	6.0	6.6	5.8	51.4	22.7	13.7	8.5	-2.8	-2.6	-2.4	-2.2							
Indonesia	7.5	8.2	8.0	5.0	8.5	9.4	7.9	6.6	2.0	3.0	2.3	1.4	-1.7	-3.4	-3.5	-2.2	24.8	25.6	39.1
Malaysia	9.2	9.5	8.6	7.8	3.7	3.5	3.5	2.7	2.3	.9	1.5	3.3	-6.3	-8.5	-5.2	-3.3	21.8	26.1	28.0
Philippines	4.4	4.8	5.7	5.1	9.1	8.1	8.4	5.0	1.1	.5	.3	.2	-4.6	-4.4	-4.3	-4.8	11.1	16.2	20.1
Thailand	8.6	8.8	5.5	-4	5.1	5.8	5.8	5.6	2.8	3.2	.7	-.6	-5.6	-8.0	-7.9	-3.0	55.4	53.7	49.5
South Korea	8.6	8.9	7.1	5.5	6.3	4.5	4.9	4.5	.6	.5	.0	-.1	-1.2	-2.0	-4.9	-1.8	18.3	22.5	22.2
Taiwan	6.5	6.0	5.7	6.8	4.1	3.7	3.1	.9	-5.7	-7.4	-8.0	-7.6	2.6	1.9	3.8	4.5	8.5	8.4	7.5
Hong Kong	5.4	3.9	5.0	5.3	8.2	8.6	6.0	5.7	1.7	-1.3	1.5	5.2	1.6	-3.2	-.7	-6.0	365.8	290.2	287.4
Singapore	10.5	8.7	6.9	7.8	3.1	1.7	1.4	2.0	12.5	11.5	10.7	10.8	17.0	16.9	15.0	13.7	331.4	290.2	273.0

<sup>a</sup>Central government fiscal balances.

<sup>b</sup>Claims of BIS-reporting banks. Large ratios for Hong Kong and Singapore reflect their role as major financial centers.

Source: Data for all developing countries from the IMF; individual countries' data for real GDP, consumer prices, government balances, and current account from Standard & Poor's DRI, and foreign bank claims data from the Bank for International Settlements (BIS).

decline of the magnitude that now seems likely, however.

### *Southeast Asia*

The economic situation in the other Asian Tigers during the 1990s was roughly similar to South Korea's. Although circumstances varied across countries, some generalizations apply. As can be seen in Table 2, in all of these countries, growth was strong, inflation was reasonably low (despite a rapid expansion of bank credit), and fiscal balances were generally prudent. In other words, most traditional measures of "fundamental" economic health looked good.

To be sure, current account balances were deteriorating. But many observers interpreted this trend as a market response to the investment opportunities available in rapidly developing countries. And foreign investors seemed eager to supply these countries with large amounts of capital, although much of it was short term and denominated in dollars. As Table 2 shows, Bank for International Settlements (BIS) data revealed high ratios of loans from foreign banks relative to GDP in most of these countries in the mid 1990s.

As analysts around the world look for clues as to what went wrong in Asia, attention is turning to financial asset markets.<sup>14</sup> This current focus on asset markets has two strands—one emphasizes the over-investment that drove asset values to unrealistic lev-

els; the other emphasizes "directed" or "relationship" lending that channeled resources to unproductive ends.<sup>15</sup> Both blame lax banking supervision and inadequate disclosure requirements for allowing untenable positions to build. The next section looks at Asian asset markets in more detail.

<sup>14</sup> For example, chapter four of the IMF's May 1998 *World Economic Outlook* examines indicators of vulnerability to financial crises in 50 advanced and emerging market countries from 1975 to 1997. It finds that "typically, in the lead-up to a currency crisis, the economy is over-heated: inflation is relatively high, the real exchange rate is appreciated, the current account deficit has widened, domestic credit had been growing at a rapid pace, and asset prices have often been inflated" (IMF May 1998, page 96).

<sup>15</sup> Paul Krugman, Nouriel Roubini, and other commentators in the fundamentals camp argue that the crisis reflected excessive investment fueled, first, by international speculation that drove regional asset values to unrealistic levels, and second, by an East Asian variant of crony capitalism that directed investment to unproductive ends (Krugman 1998). Krugman has further argued that East Asia's spectacular economic growth since the 1960s was based on an accelerated use of the inputs of labor and capital rather than on the absorption of new technology. So, by the 1990s, the pace of the region's growth was likely to slow as diminishing returns set in (Krugman 1994).

Jeffrey Sachs and Steven Radelet espouse a contrary view, arguing that IMF errors caused a crisis that was, at base, avoidable. After the initial devaluation of the baht in mid 1997, the IMF effectively yelled "fire" by announcing that severe shortcomings in East Asian financial markets would require fundamental restructuring; thus alerted, investors began to run for the exits. But the fundamentals of East Asian economies were sound, in this view, and any vulnerabilities in such sectors as finance or real estate would have been manageable in the absence of the IMF spooking private investors (Radelet and Sachs 1998a, b).

### III. Asset Values and Investment in Asia

#### Japan

In Japan, the decade of the 1980s was characterized by rapidly rising asset prices, including, after 1985, a strongly appreciating yen. By contrast, consumer prices increased very modestly, despite a declining unemployment rate and an accommodative monetary policy as measured by the growth in M2 + CDs and in bank credit. As Appendix Table 1a shows, these aggregates grew faster than nominal GDP by substantial margins in the second half of the 1980s, as interest rates fell to levels that were among the lowest in the OECD.

Between 1981 and 1989, the value of the Nikkei, the main index of stock prices in Japan, increased fourfold. Price-earnings ratios jumped from 20 in the early 1980s to more than 30 a few years later, with essentially unchanged earnings (see Figure 3). Earnings then picked up, and P/E ratios soared, surpassing 60 in 1987, as low domestic interest rates helped to support high-flying equity prices. Over the next two years, accelerating earnings further buoyed the Nikkei but let P/E ratios moderate. Tighter monetary policy starting in 1989 and flattening earnings in 1990 led to a sharp decline in stock prices. A further drop in earnings in the 1992 economic slowdown sent the Nikkei plunging. Earnings have remained depressed ever since, at less than half the level in the peak year of 1989 and below the levels of the early 1980s.<sup>16</sup>

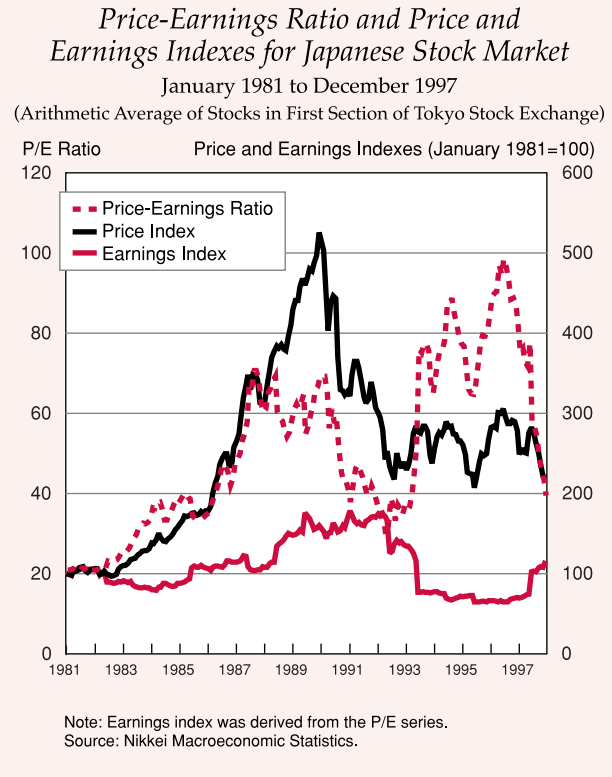
The fluctuations in Japan's stock market have been mirrored by developments in real estate. Real estate values soared in the late 1980s, particularly in Japan's largest cities, only to plunge in the early 1990s.<sup>17</sup> Land prices also rose and then fell in Japan's smaller cities, but the swings have been more modest.

These changes in asset values were linked to

<sup>16</sup> Because earnings have been so weak, in recent years P/E ratios have at times surpassed levels seen in the heady days of the late 1980s, even though stock prices are down substantially.

<sup>17</sup> Commercial land prices in the six largest cities quadrupled between 1985 and 1989; residential and industrial land prices rose only slightly less rapidly. Prices peaked in 1991 and plummeted in 1992. They then continued to fall steadily. As of late 1997, commercial land prices had almost completely retraced their earlier run-up and were back to levels of 12 years earlier. As for land prices in the smaller cities, the index of commercial land values for 200-plus cities was down "only" 40 percent from its peak, as compared to the 75 percent decline suffered in the largest cities (Japan Real Estate Institute 1998).

Figure 3



shifts in real economic activity. A surge in business investment accompanied the bullish stock market as soaring equity prices and an accommodative monetary policy made the cost of capital relatively cheap. Business investment then collapsed in the early 1990s. Residential investment also grew very rapidly for a brief period, roughly coinciding with the sharpest escalation in land prices. However, in contrast to business investment, the increase was short-lived. (Table 3 highlights the timing of these changes.)

With the benefit of hindsight, during the "en-daka" or "bubble" years, Japan fell victim to damaging speculation in asset prices. As Kähkönen (1995) points out, almost all empirical studies attempting to explain Japanese asset price movements since the mid '80s find evidence of a speculative bubble, with fundamentals unable to explain the sharp rise and subsequent fall of these prices. Kähkönen's own empirical work leads him to conclude, in the case of stock prices, that cyclical improvements in corporate profits should not have affected a rational investor's valuation of equities and, thus, that "the possibility of a bubble cannot be excluded." In the case of land prices, he

Table 3  
*Asset Price Changes and Real GDP Growth in Japan*  
 Percent

	Real GDP	Nikkei 225	Earnings <sup>a</sup>	Land Prices		Real Effective Exchange Rate
				Large Cities	Small Cities	
1985	4.3	18.8	+	8.4	2.4	-5
1986	2.9	30.4	=	21.3	2.7	17.4
1987	4.1	41.5	+	35.1	9.4	2.9
1988	6.3	16.6	+	19.2	5.6	5.1
1989	4.8	26.0	++	27.4	8.9	-6.8
1990	5.2	-13.4	-	20.3	16.0	-10.8
1991	3.8	-17.6	+	-6.9	3.3	4.7
1992	1.0	-25.2	-	-19.4	-3.9	1.8
1993	.3	5.0	--	-15.1	-5.0	14.1
1994	.7	4.3	-	-11.0	-3.7	3.9
1995	1.4	-12.9	=	-13.8	-3.6	.8
1996	4.1	21.5	-	-9.7	-4.5	-14.7
1997	.9	-12.9	++	-5.8	-3.6	-5.0

<sup>a</sup>Calculated from stock price index and price-earnings ratios.

Source: Real GDP data from FAME database of the Board of Governors of the Federal Reserve System; Nikkei 225 price index and price-earnings ratios from Haver Analytics; land price data from the Japan Real Estate Institute; and real effective exchange rate data from J.P. Morgan.

finds that fundamentals, like real GDP growth and monetary policy, and changed expectations for the growth in rents (admittedly hard to measure), leave “the bulk” of the increase in land prices in the late 1980s “unexplained.”

Whether investment was also “excessive” is more problematic. As noted above, except for a brief spurt, residential investment was not extraordinarily high by past standards, and the Japanese are certainly underhoused in comparison with U.S. residents.<sup>18</sup> In contrast, however, Japan’s rate of business investment in the late 1980s probably should have been recognized as unsustainable. At the end of the decade, investment was increasing two to three times as fast as consumption (or consumption plus exports). Such a rate seems rapid, given the maturity of the Japanese expansion and the advanced level of development that Japan had achieved.

Moreover, between 1985 and 1988, the yen almost doubled in value vis-à-vis the dollar and other East Asian currencies tied to the dollar. More broadly, by 1988 the yen was almost 30 percent above its average for the 1980–85 period on an inflation-adjusted, trade-weighted basis. Thus, even as Japan launched a major investment program, the sharp appreciation of the yen was undermining the competitiveness of its products in world markets and leading to a decline in its share of world exports in the early 1990s. While these in-

vestments may have produced efficiencies that helped prevent an even greater loss of market share, they also contributed to excess capacity. Even now, by some estimates, about 30 percent of the productive capacity in Japan’s housing, retailing, construction, and major appliance industries is unneeded; in autos the figure is roughly 20 percent (Fuji Research Institute 1998).

As in the U.S. real estate crises, financial liberalization also played a role in Japan’s saga. Starting in 1980, Japan began phasing in measures to liberalize its financial markets so that, for the first time, non-financial firms had alternatives to domestic bank credit. As firms gained readier access to foreign bond and equity markets, the increased competition led to a fall in the cost of domestic financing, en-

couraging investment.<sup>19</sup> But increased competition also meant that Japanese banks faced narrower margins, particularly after 1985 when interest rates on most types of deposits were deregulated. The banks responded by expanding loans to small firms in real estate and construction and in other sectors with limited access to nonbank capital. Although these borrowers were seen as riskier than the banks’ traditional customers, they were also potentially more profitable. And indeed, as real estate and stock prices rose, this strategy appeared successful. Demand for financing increased, but so too did the value of borrowers’ collateral. Moreover, since the banks themselves were permitted to own stocks and real estate and to count unrealized capital gains as part of their capital base, the rise in asset prices directly increased this base, supporting greater lending.

<sup>18</sup> Remarkably, however, the fraction of GDP devoted to residential investment in Japan surpasses that in the United States, despite the U.S. penchant for large and comparatively luxurious dwellings and the faster U.S. population growth.

<sup>19</sup> Starting with a revision of the *Foreign Exchange Control Law* in 1980, Japanese nonbank firms gained increased access to foreign banks and foreign and domestic bond and equity markets, thereby reducing their dependence on the Japanese banks. Until then, financial regulations had ensured that the Japanese banks were the primary beneficiaries of Japan’s high savings rate. But the increased competition spurred by financial deregulation broke the banks’ cartel. (See Weinstein and Yafey 1998.)

Subsequent declines in land and stock values have put great stress on Japan's banking system and on the real economy. The net worth of many businesses has collapsed. Bankruptcies have soared. Banks have found themselves with increasing numbers of nonperforming real estate loans just as the other components of their capital base were becoming more precarious. The growth in bank credit, which had been very rapid in the 1980s, has been negligible in the 1990s; recently, outstanding bank credit has actually been falling. Japanese borrowers, particularly small and medium-sized firms, are facing a severe credit crunch.

### *Asset Values and Investment in Southeast Asia*

Identifying asset price bubbles, always difficult, is especially so in developing countries, where data are limited and investment opportunities are both large and risky. Nonetheless, such data as do exist suggest that, during the years preceding the recent crisis, rapid increases in asset prices and optimistic levels of investment occurred in much of Southeast Asia—most clearly in real estate markets. Indeed, in its recent analysis of the Asian crisis, the International Monetary Fund (IMF) includes among the most important triggers the excessive investment in property and commercial real estate (and in certain industrial sectors, particularly in South Korea and Thailand), along with the resulting rise in asset prices. And again, while consumer price inflation remained moderate, bank credit grew substantially faster than nominal GDP as capital inflows into these pegged-currency countries soared (Appendix Table 1b).

Stock markets in Southeast Asia did not follow a common pattern in the years just before the recent crisis (Figure 4). Between 1995 and mid 1997, equity prices rose briskly in Hong Kong and Indonesia and modestly in Taiwan and Malaysia; but stock prices exhibited no clear trend in Singapore and the Philippines and declined sharply in Thailand starting in 1996. While P/E ratios were elevated by U.S. standards—especially, as the BIS points out, given the comparatively high domestic interest rates prevailing in these countries and the much greater volatility of these markets,<sup>20</sup> P/Es were far below those reached in Japan and generally below these countries' previous peaks. And earnings, with the notable exception of South Korea, were rising. In other words, while P/Es

may have been high given the risks faced by investors in developing countries, for the most part they were not obviously out of line.

In real estate markets, by contrast, the situation was more clearly ominous (Figure 5). In Singapore, industrial property prices rose over 250 percent between 1990 and late 1996, while residential property prices rose 300 percent. Construction outran demand, and occupancy rates began to fall in 1995. In Hong Kong, property prices quadrupled between 1990 and late 1996. Rents rose much less rapidly and the rent-to-property price ratio (the equivalent of earnings-to-price (E/P) ratios for equity markets) fell steadily. In Thailand, where real estate data are limited, the collapse of a property company in early 1997 drew the world's attention to the thousands of empty condo units ringing Bangkok. This bankruptcy initiated a reassessment of the Tiger economies and precipitated the present crisis.

Since mid 1997, property prices have fallen in much of the region. In particular, office property prices have fallen 30 to 35 percent in Hong Kong and Bangkok and 10 percent in Singapore and Kuala Lumpur since March 1997 as office vacancy rates have risen in all four cities. The real estate collapse has put severe pressures on banking systems in the region.

### *Asset Values and Investment in South Korea*

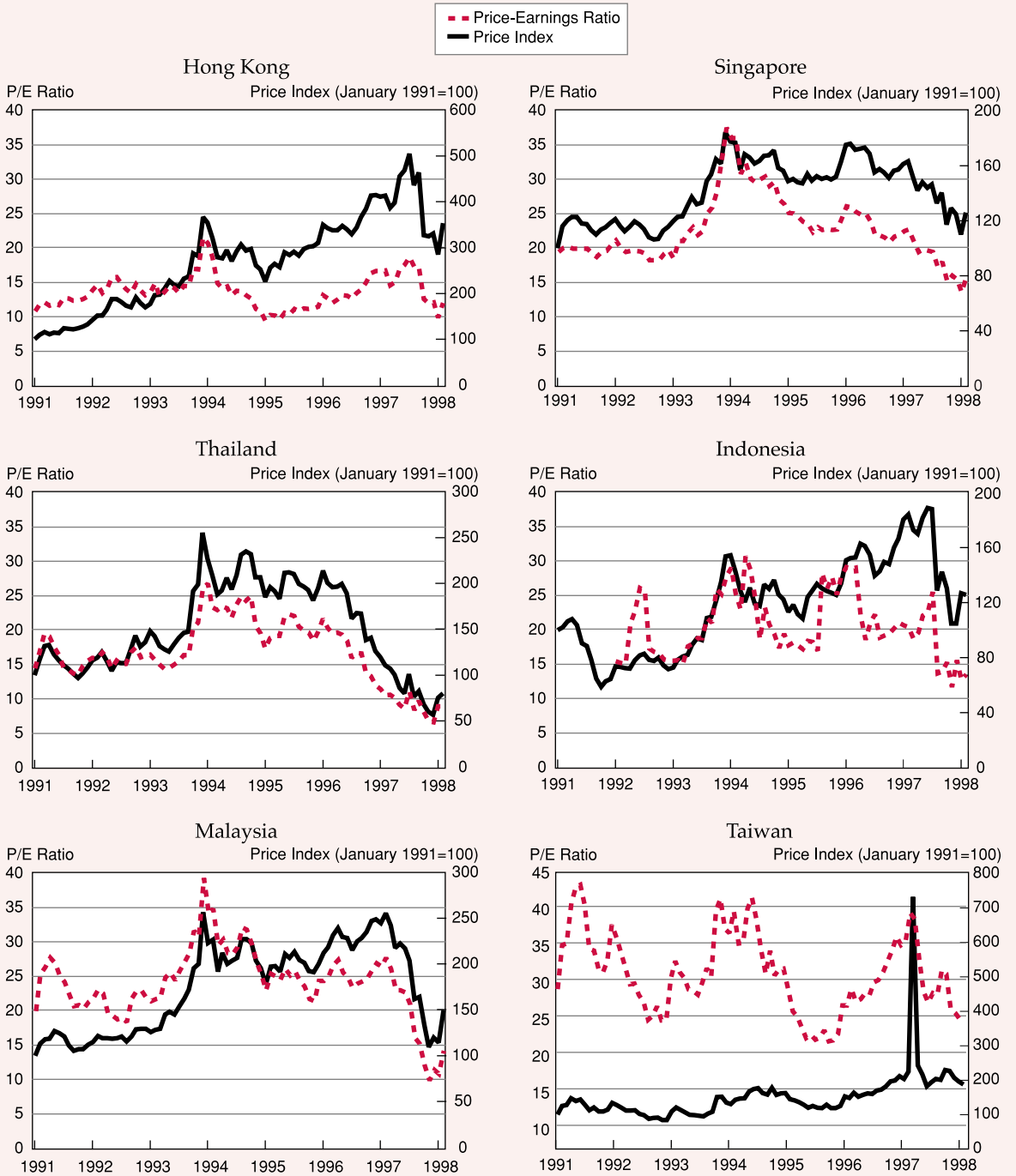
Signals that something might be amiss were especially subtle in South Korea, particularly as information on property values is limited. The Korean stock market shadowed the Japanese market during the 1980s, soaring almost eightfold in value (see Figures 3 and 6). However, at its 1980s peak, the average P/E ratio in Korea was just 15, suggesting that the rise in the market, spectacular as it was, may not have been fueled by expectations of future price increases but by the high earnings growth of a rapidly developing economy. In particular, Korea received a very strong boost from its external sector in the 1980s. Export growth was extremely rapid: Korea's current account swung from a deficit amounting to 8 percent of GDP in 1980 to a comparable surplus in 1988.

In 1989, however, Korea suffered a reversal as its relative unit labor costs jumped sharply and its competitive position took a turn for the worse. Exports (in won) declined, while imports grew strongly. The deterioration in exports was broad-based, involving sales to most developed countries and cutting across many product categories. The stock market plummeted as both earnings and P/Es fell. But the effect on

<sup>20</sup> See Bank for International Settlements, *67th Annual Report*, page 105.

Figure 4

*Price-Earnings Ratio and Price Index for Selected Asian Stock Markets*  
January 1991 to February 1998

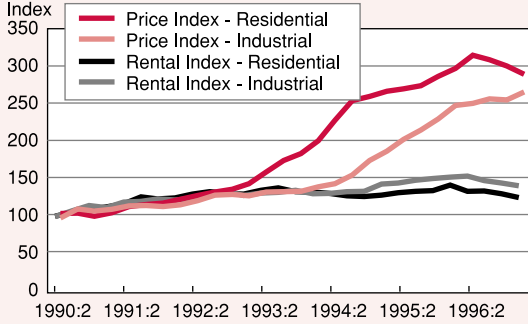


Source: Standard & Poor's DRI.

Figure 5

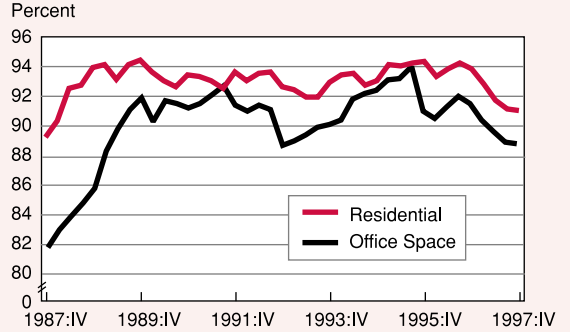
*Singapore*

Property Price Index and Property Rental Index



Monthly data from February 1990 to January 1997.  
Source: Standard & Poor's DRI.

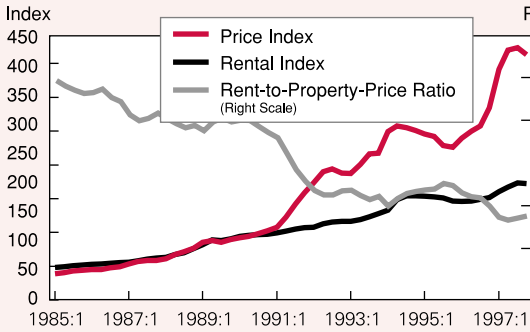
Occupancy Rate



Quarterly data from fourth quarter 1987 to fourth quarter 1997.  
Source: Standard & Poor's DRI.

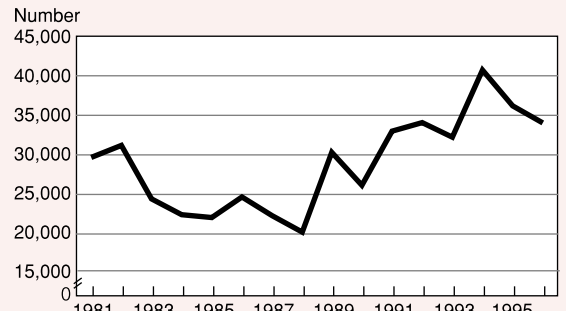
*Hong Kong*

Property Price Index, Property Rental Index, and Rent-to-Property-Price Ratio



Monthly data from January 1985 to April 1997.  
Source: Standard & Poor's DRI.

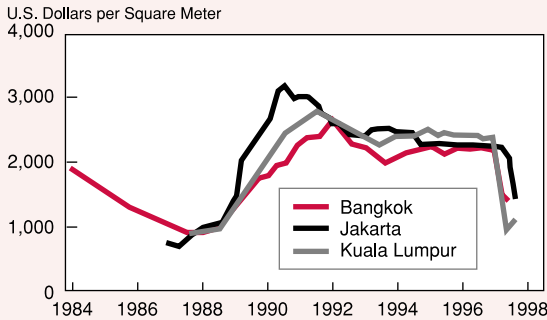
Vacancies in Domestic Premises



Annual data from 1981 to 1996.  
Source: Standard & Poor's DRI.

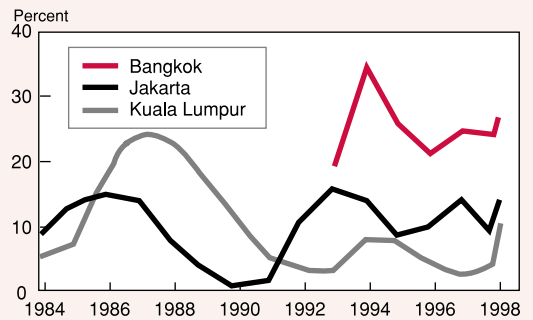
*Other Southeast Asia*

Average Net Prime Office Capital Values



Quarterly data.  
Source: © Jones Lang Wootton, May 1998. Reproduced with permission.

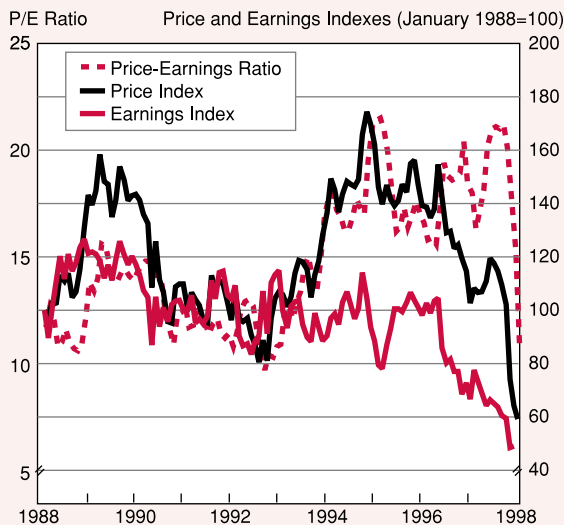
Office Vacancy



Quarterly data.  
Source: © Jones Lang Wootton, May 1998. Reproduced with permission.

Figure 6

*Price-Earnings Ratio and Price and Earnings Indexes for Korean Stock Market*  
 January 1988 to December 1997  
 (Arithmetic Average of All Stocks Listed)



Source: Standard & Poor's DRI.

overall growth was delayed, because the government started a massive construction program that doubled the share of GDP devoted to housing investment over the course of two years.

By 1994, the South Korean stock market had regained its earlier peak. Earnings, in contrast, remained well below their previous high. Thus, unlike the 1980s, the market's gains in the 1990s were based primarily on higher stock valuations, as P/Es fluctuated between 16 and 21 over the next three years. While low by Japanese standards, P/Es in this range exceed the U.S. experience in all but a few years. Expectations of strong future earnings might justify such values. But Korean corporations faced serious challenges.

Although total exports resumed growing in the 1990s, important categories of exports, including apparel, footwear, and some consumer electronics, did not. Korea faced intensified competition on several fronts. China was proving an increasingly virile global competitor, and from mid 1995, the appreciation of the U.S. dollar, and thus the dollar-linked won, vis-à-vis the yen placed Korea at a disadvantage versus Japan

in some export markets. Mexico's late 1994 peso devaluation also posed a challenge, as did Taiwan's 1996 entry into semiconductor production, since semiconductors rank among Korea's most important exports. By 1996, thus, South Korea's current account deficit had reached 5 percent of GDP and was exerting a significant drag on the Korean economy. All in all, Korea's economic outlook was turning increasingly precarious. Yet the high levels of capital spending that had become a key component of GDP growth continued.

South Korea is often seen as following the Japanese model of economic development, in that saving and investment rates were very high and the government intervened actively in the economy to encourage the development of favored industries. During the 1980s, constant-dollar private nonresidential investment grew an average of almost 12 percent per year, compared to consumption and GDP growth of 8 percent and 9 percent respectively. In the 1990s, growth in nonresidential investment averaged 9 percent per year, versus 7 percent in consumption and GDP.

Such rapid growth in investment had boosted investment's share of GDP to over 35 percent by the mid 1990s. Rates of return to capital had fallen quite precipitously, however. According to the OECD, capital's share of income in Korea had dropped from over 50 percent in the 1970s, to 45 percent in the first half of the 1980s, to just over 30 percent in the mid 1990s. Given Korea's low level of development 20 years ago, it is not surprising that the return to capital was considerably higher then. But the rapid decline in capital's share of income implied that investment could not continue to grow faster than the rest of the economy without driving rates of return down to very low levels. With the external sector struggling, however, Korea needed strong investment to achieve the rates of GDP growth it had come to expect.

As in Japan, financial liberalization also played a role in Korea—with similar results. Interest rate deregulation was phased in, starting in late 1991.<sup>21</sup> Deposit rates rose, as lending rates fell, pinching bank earnings. In response, South Korean banks looked for new lending opportunities, particularly in real estate

<sup>21</sup> Interest rate deregulation followed the following schedule: November 1991, deposits maturing in three or more years and corporate bonds maturing in two years; November 1993, loans (except government loans) and deposits maturing in two or more years; December 1994, deposits maturing in one or more years; in July 1995, deposits maturing in more than six months and less than one year; and in November 1995, demand deposits of three or more months (W.A. Park 1996).

and construction.<sup>22</sup> Korea also began to liberalize its capital account. Historically, Korea had financed most of its investment domestically. In 1993, however, Korea began to relax restrictions on capital inflows, particularly on short-term bank debt. Limits on foreign ownership of Korean stock were eased, and Korean companies were permitted to borrow from foreign banks indirectly through authorized Korean banks. Thus, they were able to take advantage of the very low interest rates available on short-term dollar-denominated interbank loans. As foreign borrowing soared, Korea's highly leveraged firms and weak banking system grew more exposed to the discipline of international capital markets just as the viability of Korean assets turned increasingly suspect.<sup>23</sup> Previously, the ultimate judge of the value of Korea's investment projects had been the South Korean government, which could overlook disappointing returns in favor of social goals. Financial liberalization imposed the judgment of international capital markets—eventually.<sup>24</sup>

#### IV. Distortions in the Real Economy— A Cross-Country View

That Japan, South Korea, and other East Asian countries engaged in excessive investment spending is obviously much clearer with hindsight than it was in the years before the crises. Even now, it must be recognized that financial crises create self-fulfilling prophecies in which projects that would have been viable in the absence of crisis fare no better than those that could never have generated a competitive return. (Conversely, loans based on inflated net worth and real estate collateral do not look weak until asset and currency prices collapse.) Nevertheless, the levels of investment spending in some of these countries were quite extraordinary.

<sup>22</sup> The percentage of securities in banks' assets rose from 19.6 percent in 1990 to 32.4 percent in 1995. Trust accounts, where risky real estate investments could be held without regulatory oversight, also grew as a share of bank assets, from 17.9 percent in 1990 to 34.5 percent in 1995 (W.A. Park 1996).

<sup>23</sup> As of 1994, the only restriction on such borrowing was that over half of the loans must have an initial maturity of more than three years. In May of 1995, in an effort to stem domestic investment growth financed by foreign-currency borrowing through domestic banks, the government tightened some of the access regulations, but with little impact on overall borrowing levels (*OECD Economic Survey, Korea, 1995–1996*, p. 136).

<sup>24</sup> While improved accounting and disclosure standards are essential to preventing future crises, the transition to new standards can be difficult when the slate is not clean. As better information has become available in Asia, it has often alerted investors to the poor quality of credits already extended.

Figures 7a through 7k show investment spending relative to GDP in Japan and seven other Asian countries and compare these levels with investment spending in the OECD. In these figures investment includes public and private, nonresidential and residential; data are nominal. As can be seen, in the 1990s, investment averaged some 40 percent of GDP in Thailand and Malaysia, while in South Korea and Singapore investment spending surpassed 35 percent of GDP. In Japan and Hong Kong investment's share of GDP was a more modest 30 percent. In contrast, investment spending in the OECD countries averaged about 22 percent of GDP in the 1960s and 1970s, and 20 percent or less more recently.

Admittedly, most of the Asian countries have grown much faster than the OECD nations. Indeed, higher investment is generally regarded as one of the reasons for their rapid growth; and presumably a faster-growing and less developed economy can make effective use of a higher level of investment spending. But South Korea, Hong Kong, and Singapore are now considered "advanced" states.<sup>25</sup> And in Korea, Thailand, Malaysia, and Hong Kong, investment levels in the 1990s were high by the standards of their own past, as well as in comparison with investment shares in developed countries.<sup>26</sup>

In Japan, the figures are less startling. While the share of GDP devoted to investment rose in the late 1980s, it remained below the levels achieved in the 1960s and early 1970s. Japan's growth was much faster back then, however, and Japan was at an earlier stage of economic development, with more opportunity to "catch up." A more relevant comparison may be between Japan in the 1980s and the OECD countries in the 1960s. Growth rates were comparable; but, the OECD nations devoted less than 25 percent of GDP to capital formation in the 1960s.

Data from the Penn World Table, presented in Appendix Figure 2, argue even more persuasively that levels of investment spending in the Asian countries in the late 1980s and early 1990s were very high. The Penn World Table data attempt to measure expenditures in "a common set of prices in a common cur-

<sup>25</sup> The IMF has recently recategorized Hong Kong, South Korea, Singapore, and Taiwan (as well as Israel) as "advanced" countries because their per capita incomes and industrial structures put them on a par with the members of the OECD.

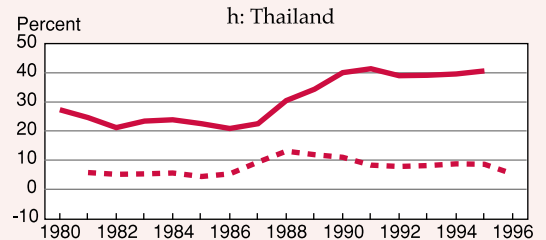
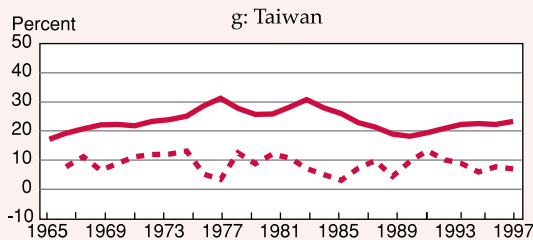
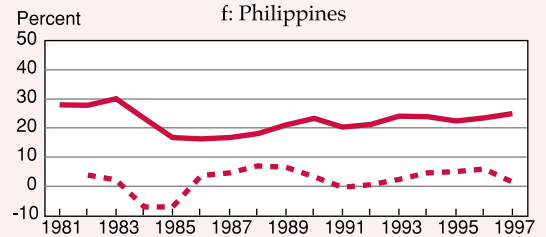
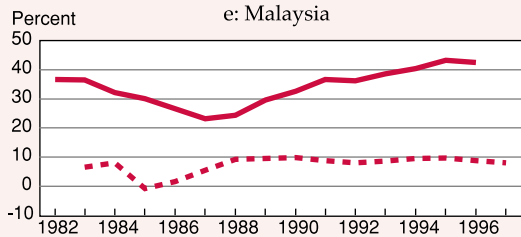
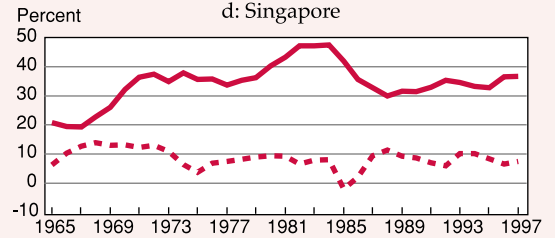
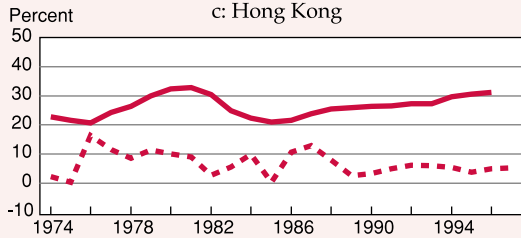
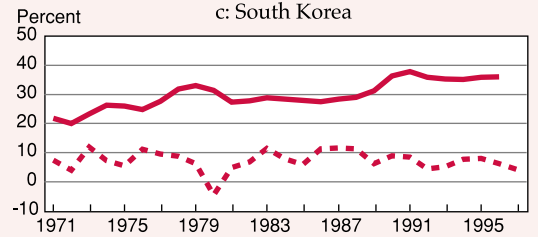
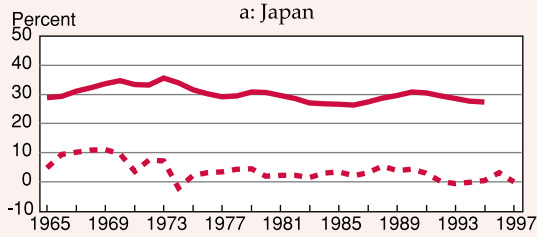
<sup>26</sup> Singapore, in contrast, had achieved even higher levels of investment spending in the early 1980s, with almost 50 percent of GDP devoted to capital formation. As this earlier episode ended with a sharp economic downturn and a scaling back of investment's share, it does not provide much support for the sustainability of such spending.



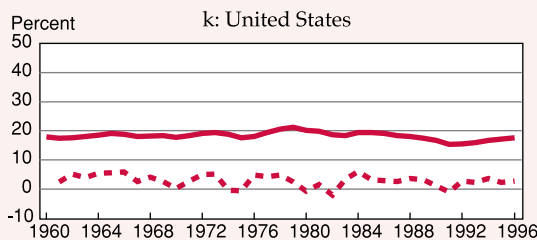
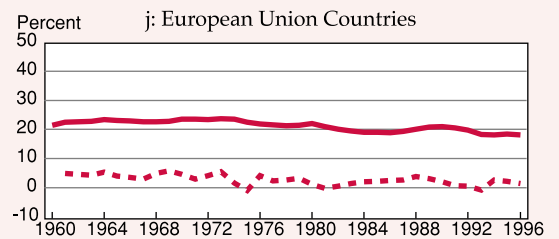
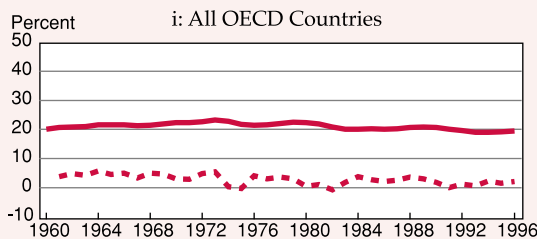
Figure 7

*Investment/GDP and Growth in Real GDP*

Selected East Asian Countries



Selected Benchmark Industrialized Countries



— Gross Fixed Capital Formation/GDP  
 - - - Real GDP Growth

Source: Standard & Poor's DRI; OECD.

rency so that *real* quantity comparisons can be made, both between countries and over time” (Summers and Heston 1991, p. 327). The rationale behind the Penn World Table is that a given category of goods can cost more in real terms in some countries than in others. In general, investment goods—both producer durables and construction—are relatively more expensive in poor countries than in rich ones. Consequently, the same fraction of GDP devoted to investment buys much less “real” investment in low-income than in high-income countries. The difference is most pronounced in the very poorest countries and largely disappears as countries’ output per capita rises above one-third of the U.S. level.

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*A feature of many recent crises in both developed and developing countries has been a bout of construction activity running ahead of sustainable demand.*

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Thus, the very high shares of nominal GDP devoted to investment by South Korea, Thailand, and Malaysia back in the 1960s and 1970s actually provided relatively little in the way of real investment. However, by the late 1980s and early 1990s, reflecting these countries’ gains in development and the associated declines in the cost of investment goods, the ratio of investment to GDP was soaring, far surpassing earlier levels and the levels in the developed world. The Penn World Table data do not extend beyond 1992, unfortunately, but based on the nominal figures for GDP and investment, the upward trajectory must have continued.

Real estate has played a particularly important role in the current crisis and in Japan’s earlier problems. Here, the U.S. real estate and banking crises in Texas in the mid 1980s and New England in the late 1980s are instructive. In neither U.S. case were signs of impending problems obvious. While rising property prices in New England could have been seen as a sign of overheating, California had experienced an earlier escalation without serious consequences, while more elastic construction in Texas damped down price increases. Nor was the emergence of excess capacity

immediately evident in higher vacancy rates. (Similarly, in Japan, the number of bankruptcies and default rates fell to very low levels during the “bubble” years between 1986 and 1989; they soared, along with the value of liabilities involved in bankruptcies, in 1990 and 1991. And corporate profits, which had been rising until 1990, did not turn down until 1991. (See Bank of Japan 1998a, pp. 22–32 and 1998b, chart 37.)

However, an examination of employment patterns in manufacturing and other traded goods industries relative to those in construction would have revealed that the expansion in construction lacked solid underpinnings, as both regions were encountering difficulties in industries that historically had provided the primary impetus to their growth (see Browne 1992). In effect, the real estate developers were building offices for themselves and the service industries supported by their growth. Figures 8 and 9 compare changes in traded goods employment to changes in construction employment, over three-year periods, for New England, Texas and selected Asian countries.<sup>27</sup> (A box presents a similar comparison for three Scandinavian countries that had serious financial crises in the early 1990s after a period of rapid increases in stock and real estate prices.) In most cases, employment trends in traded goods industries and in construction diverged sharply in the years before the crisis. In Asia, the divergence is especially pronounced in South Korea; Thailand and Singapore also show clear gaps. In Japan, by contrast, the divergence in the late 1980s was more modest. The notable recent divergence reflects weakness in manufacturing employment concurrent with new public works projects intended to stimulate the economy.

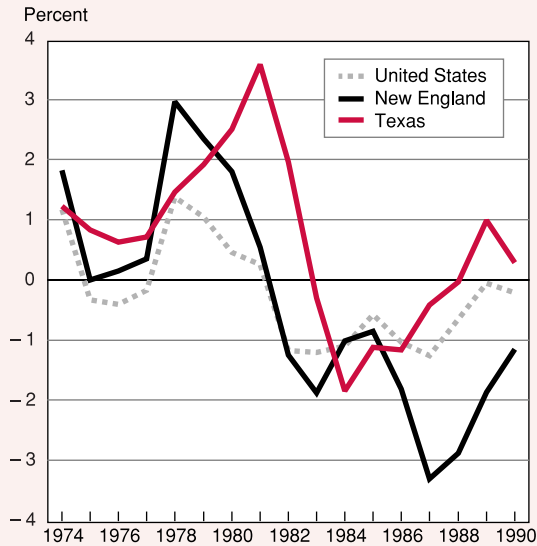
Admittedly, the effect of high levels of construction on real estate and financial markets depends in part on what is built. Public works projects create little or no capacity overhang in the private sector, although completion of large projects will still pose adjustment challenges, and some public projects may not be economically productive. Also, timing is unpredictable; as Finland’s experience illustrates (see the box), employment in traded goods industries and construction may diverge for a considerable period before a

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<sup>27</sup> Divergence is calculated as  $[(X_t - X_{t-3}) - (C_t - C_{t-3})]/E_t$  where  $X_t$  is export employment,  $C_t$  is employment in construction and  $E_t$  is total employment, all in year  $t$ . Browne’s original analysis looked at the growth in employment in both construction and real estate relative to the growth in export employment. Figure 8 shows only construction employment in order to be comparable with the Asian data, which generally include real estate in another employment category.

Figure 8

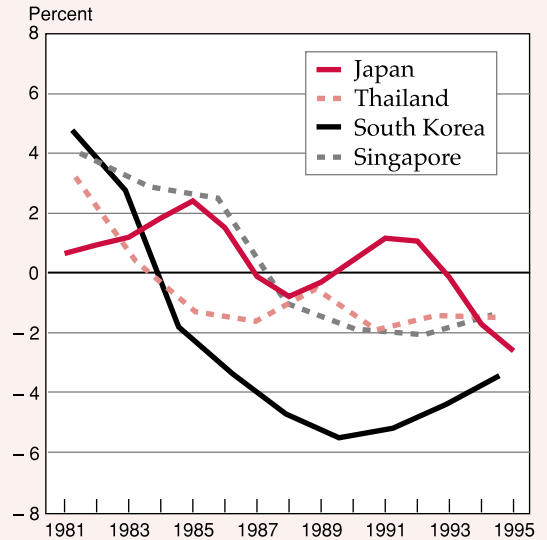
*Divergence between Changes in Export Employment and Changes in Construction Employment*



Note: Calculations described in the text.  
Source: U.S. Bureau of Economic Analysis.

Figure 9

*Divergence between Changes in Export Employment and Changes in Construction Employment*  
East Asian Countries



Source: OECD; Standard & Poor's DRI.

correction. Nonetheless, a feature of many recent crises in both developed and developing countries has been a bout of construction activity running ahead of sustainable demand.

In sum, the East Asian countries now in crisis, as well as Japan before them, appear to have fallen victim to problems that showed up first or early in asset markets. In some cases, notably Japan, huge fluctuations in asset prices left a crippled banking system and an overhang of excess capacity in some sectors. In others, notably South Korea, asset markets were less clearly involved while the high level of investment spending (and, recently, associated foreign debt) seems more problematic. In Thailand, excessive investment in both financial assets and industrial capacity appears to have contributed to the crisis. But in no case did consumer price indexes indicate overheating.

### V. Consumer Prices and Asset Markets in a Global Context

The global context is key to understanding how Asian asset markets could become overheated or distorted without an acceleration in consumer price

inflation. In Japan, a soaring exchange rate seems to be a critical part of the story. In contrast, effective exchange rates in most of the Asian Tigers did not increase markedly until the second half of 1995, when the yen began to fall in value.<sup>28</sup> Nonetheless, producers of tradable goods already faced intense competition both at home and abroad. The good behavior of tradable goods' prices most likely helped restrain domestic inflation, even as a surge in foreign capital inflows in response to financial liberalization encouraged investment.

In theory, an appreciating exchange rate can damp down consumer price inflation in an open economy, even as it shifts economic activity toward nontradables industries. A rising exchange rate lowers the cost of imported products and puts competitive pressure on domestic producers of tradable goods. At a given overall rate of growth, nominal interest rates will tend to be lower, favoring construction and real estate. If speculative tendencies are present, they are likely to be reinforced by a rising exchange rate. When speculative and momentum trading is significant,

<sup>28</sup> Effective exchange rates are inflation-adjusted averages of exchange rates for a country's important trading partners.

### Asset Prices, Consumer Prices, and Banking Crises in Selected Scandinavian Economies

In the early 1990s Norway, Finland, and Sweden experienced severe banking crises that shared a number of features with other financial crises, like the regional banking problems in the United States and the more recent problems in East Asia. The resulting stresses in Scandinavia were sufficiently severe that a number of the largest banks required substantial public funding to continue operating.

As in Asia, Scandinavian consumer prices stayed relatively flat by historical standards in the pre-crisis period, despite rapid growth in bank credit; strong real effective exchange rates and increased competition in export markets probably contributed to the subdued behavior of consumer prices. By contrast, rapid increases in real estate and equity prices first stimulated bank lending but later, as asset prices turned down, posed a severe challenge to the banking sector's viability.

Financial market deregulation also played a role in each of these countries' banking crises.<sup>a</sup> Before the early 1980s, all three countries had maintained a tradition of strict bank regulation. According to the head of financial research at the Norwegian Central Bank, Sigbjorn Berg, these rules were in place "not for prudential reasons, but as important components of their monetary policy." Interest rates and lending volumes were regulated "to control macroeconomic impulses from credit markets" (Berg 1993, p. 442). But following financial

liberalization the countries experienced rapid credit expansion and robust economic growth.<sup>b</sup> Banks sought higher returns, and households and corporations began to borrow aggressively; thus, bank loans became increasingly risky and an ample supply of credit flowed into the real estate market; real estate prices rose.<sup>c</sup> Meanwhile, overvalued real effective exchange rates, the collapse of exports to the former Soviet Union, and weakness in the world market for forestry products all contributed to a deterioration in these countries' current account.<sup>d</sup>

As the figure shows, employment growth in the nontradables sectors (real estate and construction) diverged from that in tradables sectors starting in Finland in 1983 and lasting through the decade. In Norway and Sweden, an initial divergence occurred in 1983 and reappeared in a more pronounced form in 1987 and 1988 in Norway and in 1991 and 1992 in Sweden. When the real estate market turned down abruptly in the early 1990s, banks faced substantial losses from nonperforming real estate loans. The devaluation of the markka, the krone, and the krona during the 1992 ERM crisis left domestic firms, many of which had high levels of foreign-currency-denominated debt, in difficult circumstances that exacerbated the recession that followed.<sup>e</sup>

In Scandinavia in the 1980s, as in the United

the process can feed on itself, as expectations of rising stock and property values will tend to attract foreign as well as domestic investors, further bidding up the currency and adding currency gains to foreign investors' returns in equity and real estate markets. Late in the 1980s, for example, foreign inflows to Japan's equity markets soared, bringing that country's foreign liabilities to 50 percent of GDP, up from less than 20 percent at the start of the decade (Kähkönen 1995).

Producers of traded goods are likely to respond to the combination of intense competitive pressure, on the one hand, and the low cost of capital, on the other, by undertaking investments intended to boost productivity. While these investments may indeed improve productivity, and further damp down output prices, they may also lead to overcapacity in some

industrial sectors.<sup>29</sup> Nor are rising asset prices likely to feed back into consumer price measures immediately or fully;<sup>30</sup> equity values and commercial real estate do not enter into such measures, and, while shelter is an important consumer expenditure, its price is typically calculated according to a rental equivalence method with only a loose link to housing prices. (See Appendix Table 2.)

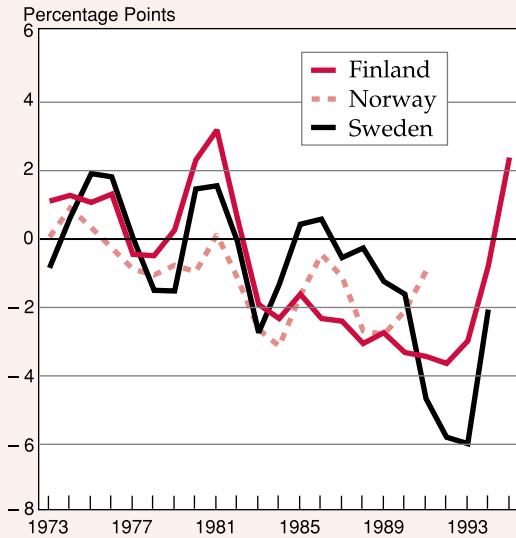
The point is not that a rising exchange rate will cause a boom in asset prices or lead to excessive levels

<sup>29</sup> Businesses may also respond to an appreciating exchange rate by increasing foreign direct investment overseas. If so, the resulting shift in labor demand will dampen wage costs and, indirectly, consumer prices in the appreciating country.

<sup>30</sup> In time, through wealth and credit channel effects, rising asset prices are likely to lead to somewhat higher prices for the goods and services measured by the consumer price index.

Figure B-1

*Divergence between Export Employment  
and Construction Employment*  
Selected Scandinavian Countries



Source: OECD.

States in the 1980s and in the East Asian economies in the 1990s, deregulation appears to have unleashed competitive forces that contributed importantly to the crisis and seemingly caught the author-

ities off guard. The cost of their myopia was high. The Norwegian and Swedish governments spent public funds equivalent to about 4 percent of their GDPs to bail out failing banks, while the cost for the Finnish government was a stunning 8 percent (IMF 1998, p. 118).

*Rebecca Hellerstein and Anna Sokolinski*

<sup>a</sup> Problems in Norway preceded those in Finland and Sweden by roughly two years.

<sup>b</sup> Norway liberalized its housing market starting in 1982, and abolished volume controls in 1984 and interest rate ceilings in 1985. As of 1990, all foreign currency transactions were liberalized, following the abolition of limits on capital flows from foreign private financial institutions in the late 1980s. Land price inflation began almost immediately after deregulation was phased in, and lasted from 1985 to 1989. Finland and Sweden followed a similar path of financial deregulation in the early 1980s. Land price inflation picked up there in 1985, lasting through 1987 in Finland and through 1991 in Sweden.

<sup>c</sup> Berg also noted that although faced with mounting evidence of severe problems in bank balance sheets, "Supervisors had (had) few problems under previous regulations and had been lulled into the belief that banking is an inherently stable industry with no great need for supervision . . . The supervisors and economic policymakers did not do much to prevent the banking crisis from developing. One can even argue that they in some cases contributed to make things worse" (Berg 1993, p. 442).

<sup>d</sup> In response to these pressures, the Finnish markka, the Norwegian krone, and the Swedish krona were initially devalued in 1991. All three currencies were unpegged from the ECU in 1992 during the ERM crisis, and the real effective exchange rate for each depreciated substantially.

<sup>e</sup> GDP slowed in 1989 as Norway went into recession. In 1990, GDP grew 0 percent in Finland and fell in 1991 by 7 percent. In Sweden a quickly deepening recession began in 1990.

of investment; but rather that, if conditions are favorable, it is likely to reinforce such tendencies while simultaneously helping to keep consumer prices relatively subdued. This scenario appears to have occurred in Japan in the late 1980s. In reprise, Japan's very strong export performance earlier in the decade provided a powerful impetus to the economy and generated great optimism about the future. Stock prices were bid up, then real estate values. Borrowing rose. Inflated real estate prices magnified the value of many borrowers' collateral, while higher equity prices fed directly into bank capital, supporting an expansion in lending.

Meanwhile, the yen was appreciating; between 1985 and 1988, the yen's effective value rose more than 50 percent. Along with the drop in world oil prices and a modest decline in unit labor costs (in yen), this

appreciation seemingly helped to damp down consumer price inflation in the face of an accommodative monetary policy and declining unemployment. Export and import prices both fell sharply in the second half of the 1980s, and prices for (nontraded) consumer services rose faster than prices for (tradable) consumer goods throughout the period; indeed, consumer goods prices actually fell in the three years from 1986 to 1988. Possibly, thus, policymakers and investors were lulled into believing, as some observers suggested at the time, that the extraordinary P/Es and rapidly rising property values were measures of Japan's competitive strength and promising future rather than indicators of an overheated economy. In fact, the strong yen was eroding the competitive position of Japan's traded goods industries; and the combination of disappointing earnings and an eventual tightening of monetary

policy subsequently led to the stock market collapse and ultimately to the financial crisis from which Japan has still not recovered.

In South Korea and most of the other Asian Tigers, rising real exchange rates were not an issue until after mid 1995 (Appendix Figure 3). Nevertheless, tradable goods producers in these countries were under severe competitive pressure. Demand from the industrial countries, especially Europe, was sluggish, while the emergence of China as a viable competitor in export markets, the devaluation of the Mexican peso, Taiwan's move into semiconductors, and increases in their own productive capacity had intensified competition. Tradable goods prices were flat through much of the 1990s, helping to damp down consumer price inflation. The situation became untenable when, in response to financial liberalization, these countries attracted huge capital inflows from abroad (Table 4).

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*A rising exchange rate is likely to reinforce tendencies toward a boom in asset prices or excessive levels of investment, while simultaneously helping to keep consumer prices relatively subdued.*

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These inflows supported rapid expansion in bank credit and increased investment relative to GDP. In several countries, construction activity accelerated and property prices rose sharply. Meanwhile, strong rates of overall growth bid up compensation costs, further weakening traded goods producers, who could not afford to pass higher labor costs on to their customers. (Korean unit labor costs, in won, rose 6 percent a year in 1995 and 1996, for instance.) Thus, problems in the external sector were both offset and obscured by strong investment spending.

That South Korea and other East Asian countries were so attractive to foreign investors was not entirely a reflection of their own attributes. Laudable reductions in fiscal deficits and inflation in many industrial countries and sluggish growth in Japan and much of Europe, despite generally accommodative monetary policies, had brought interest rates in the industrial world down to their lowest levels in many years.

Table 4  
*Five Asian Economies: Net Foreign Borrowing*  
Billions of Dollars

	1992	1993	1994	1995	1996	1997
Private Flows, net	24.7	44.8	37.9	79.2	97.1	-11.9
Equity	9.5	21.1	12.1	15.4	18.7	2.1
Private Creditors	15.2	23.8	25.8	63.8	78.4	-14.0
Commercial						
Banks	10.2	7.5	23.4	49.9	55.7	-26.9
Nonbanks	5.0	16.3	2.4	13.8	22.7	12.9

The five Asian economies are South Korea, Indonesia, Malaysia, Thailand, and the Philippines.

Source: Institute of International Finance, Inc.

When investors sought higher returns, they were drawn to the East Asian countries, most of which had just started to open their financial markets to foreigners and seemingly promised fast growth, low inflation, sensible government budgets, and "predictable" exchange rates. Banks in Canada, France, Germany, and the United Kingdom, all of which had large declines in interest rates or sharp improvements in their fiscal deficits, increased their loans to the East Asian countries rapidly.<sup>31</sup> Most of the lending was short-term, maturing within less than one year, and denominated in unhedged dollars. In South Korea, two-thirds of the lending was bank to bank.

By lending to the Korean banks, which then lent to the domestic firms, foreign banks could take advantage of the low-risk weights assigned to interbank loans in determining capital needs. Foreigners may have presumed some form of government guarantee, given the close relationships between Asian banks and their governments. And with most loans maturing in less than a year and no signs of rising inflation, foreign lenders probably thought they were protected against a broad-based deterioration in economic fundamentals and had little fear of a tightening in monetary policy. What many private investors and public officials seemingly failed to appreciate, however, was the degree to which these traditional indicators of economic soundness were being distorted by the combination of intense pressure on tradable goods producers and massive investment spending.

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<sup>31</sup> European integration has spurred considerable restructuring and increased competition in Europe's financial services sector. These forces may also have encouraged the surge in European lending to emerging markets.

Now that Asian asset prices and currencies have collapsed, borrowers' collateral values have plummeted even as the burden of their debt obligations has soared. Bank capital has evaporated, and financing for even routine working capital is scarce, particularly as alternatives to bank finance remain relatively limited in most of these countries.

## VI. Conclusion

The recent financial crisis in Asia has prompted considerable debate over many of the policy prescriptions that economists have been giving central banks and other government agencies in recent years.<sup>32</sup> It will probably take some time before any consensus emerges on the lessons to be drawn from this unfortunate episode.

Among the questions that should be considered is whether the recent emphasis on inflation has had some unpredicted and undesirable consequences. In particular, have academic arguments in favor of inflation targeting been interpreted by some policymakers and market participants to mean that as long as inflation is low, there is little cause for concern or reason for action? For instance, did low inflation rates help delay corrective action in Asia by reassuring policymakers and regulators in those countries that all was well? And did investors assume that they could scrutinize investments less closely than they might otherwise, construing low inflation in these countries as evidence that the economy was in balance or that, in any event, the monetary authorities were unlikely to tighten policy any time soon?<sup>33</sup>

This article has presented some evidence suggesting that consumer prices may provide an incomplete picture of the pressures on the economy and that other indicators, notably rising asset prices, extraordinary levels of investment spending, and rapid growth in construction relative to traded goods industries, may also signal distortions that threaten future growth. To date, discussions of the causes of the Asian crisis have centered, with good reason, on the role of inadequate transparency and lax supervision. But in the absence

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<sup>32</sup> Topics of debate include preferred exchange rate regimes, the need for restrictions on short-term capital inflows, the proper approach to financial deregulation and liberalization, and the best response to a combined currency/banking crisis.

<sup>33</sup> Mishkin and Posen (1997) explore some of these issues in four countries that have adopted numerical inflation targets for monetary policy, New Zealand, Canada, the United Kingdom, and Germany.

of good financial data and strong supervisory systems, a more critical examination of Asian investment trends might have alerted policymakers and investors to the growing instabilities. Looking ahead, improved regulation and increased disclosure are, of course, essential. But including the behavior of asset markets among the indicators receiving careful consideration and asking more probing questions about the sustainability of real investment patterns may be a useful supplement to these widely proposed financial system reforms—particularly since bad loans appear to be a lagging indicator of problems stemming from overinvestment in asset markets.

The East Asian crisis may also provide some guidance for future financial liberalizations, while, incidentally, resolving a recent debate among economists. According to the standard (Mundell-Fleming)

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*In the absence of good financial data and strong supervisory systems, a more critical examination of Asian investment trends might have alerted policymakers and investors to the growing instabilities.*

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open economy model, countries cannot simultaneously have pegged exchange rates, liberalized capital accounts, and substantial autonomy in setting monetary policy. But several authors have claimed that Malaysia, Indonesia, South Korea, and Thailand all retained considerable policy independence, despite having pegged their exchange rates and opened their capital markets to international investors (Woo and Hirahama 1996; Frankel 1993; Fischer and Reisen 1993). These authors argued that the East Asian economies achieved this feat because policymakers were able to exploit their regulatory authority over domestic institutions to influence their lending activities. The Asian sequence—international deregulation before domestic deregulation—violated the generally preferred order (McKinnon 1993). But given recent developments in these same countries, the conventional prescription appears to have been right; government efforts to guide the lending activities of domestic financial institutions tend to produce serious distur-

tions under most circumstances but particularly in an economy with a fixed exchange rate and open capital accounts.

From this perspective, the high, probably excessive, levels of investment spending in the East Asian countries may be seen not simply as a consequence of opaque, inadequate financial standards and poor financial supervision, but also as the result of government policies, both implicit and explicit, to sustain the pegged exchange rates and the high growth rates to

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*As the financial crises in Asia and elsewhere illustrate, unsustainable increases in asset prices and excessive investment spending can seriously damage economies, without a simultaneous pickup in consumer prices raising an alarm.*

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which their populations had become accustomed, despite competitive pressures on traded goods industries. Policymakers failed to recognize that, as they began to open their economies to foreign capital, they could no longer remain the ultimate judges of those investments. They had substituted the markets' values for their own.

At the same time, investors with insufficient data to form sound judgments about private sector loans had made unfounded assumptions about government guarantees. In effect, they assumed that the old way of doing business still operated in these countries. Then, belatedly recognizing the impossibility of governments' meeting such large foreign currency liabilities,

these investors looked at their loans with a more jaundiced eye and fled.

In the future, thus, policymakers, in borrowing and lending countries, may want to revisit their supervisory and tax systems to ensure that they are not creating incentives that are potentially destabilizing. This review may be particularly important in countries where the financial system is undergoing major change, for, as the Asian experience illustrates, moving from a highly regulated to a more market-oriented system can ignite forces that inexperienced lenders, borrowers, and regulators are ill equipped to handle. Since interbank lending was such an important component of the huge capital flows to Southeast Asia, high priority should go to raising the cost of interbank transactions to reflect their true degree of risk more fully. Possible measures include imposing modest reserve requirements on short-term interbank borrowing or increasing the risk weight for interbank loans in risk-based capital standards. Developing international bankruptcy procedures for nations might also help to shift the cost of international financial crises from the public to the private sector.

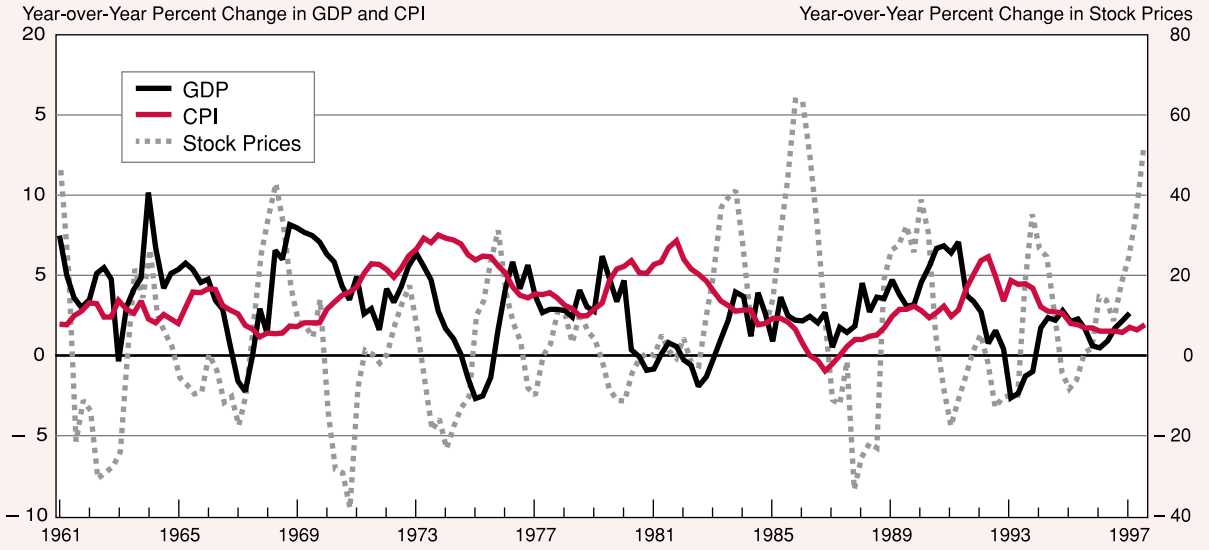
As the financial crises in Asia and elsewhere illustrate, unsustainable increases in asset prices and excessive investment spending can seriously damage economies, without a simultaneous pickup in consumer prices raising an alarm. Accordingly, policymakers may want to consider broadening their present focus on consumer price inflation to include developments in asset markets and other indicators of imbalances in the real economy. In some cases, the appropriate tools for preventing asset market imbalances may be supervisory or fiscal measures rather than monetary policy actions. However, monetary authorities still have a responsibility to use their expertise and stature to draw attention to the dangers of speculation and excessive investment. They also have a responsibility to avoid validating supervisory shortcomings and investment mistakes.



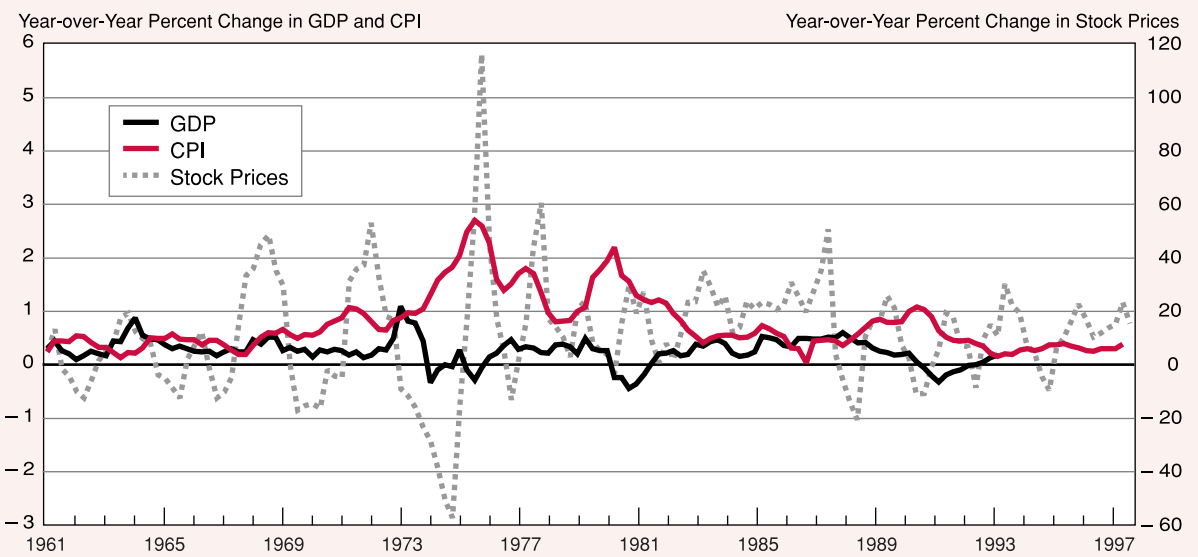
Appendix Figure 1

Classic Cases: CPI, GDP, and Stock Prices

a: Germany



b: United Kingdom



Source: OECD.

Appendix Table 1A

*Money and Credit Aggregates in Japan*

Annual Percent Change

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
M2 + CDs	8.4	8.7	10.4	11.2	9.9	11.7	3.6	.6	1.1	2.1	3.2	3.3	3.1
Bank Credit	10.2	10.0	10.8	11.3	11.5	11.2	6.3	3.6	.0	-.6	1.1	1.6	.4
Nominal GDP	6.6	4.7	4.3	6.9	7.0	7.5	6.6	2.8	.9	.8	.8	3.4	1.5

Source: OECD, Board of Governors of the Federal Reserve System.

Appendix Table 1B

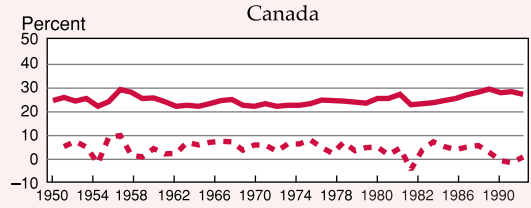
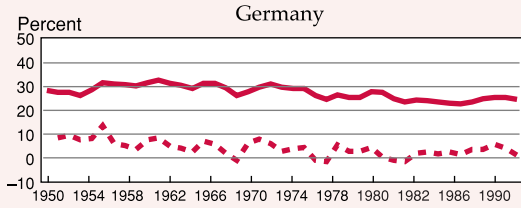
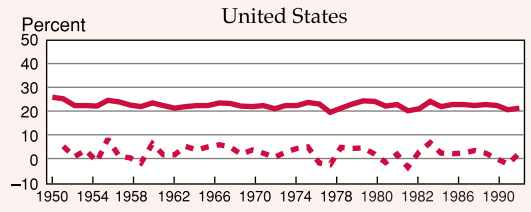
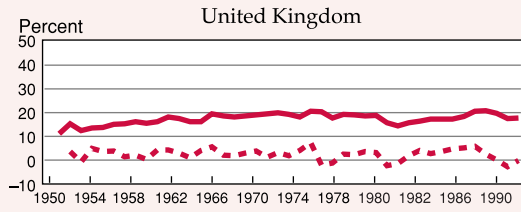
*Money and Credit Aggregates in East Asian Countries*

Annual Percent Change

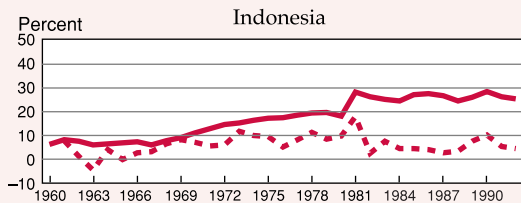
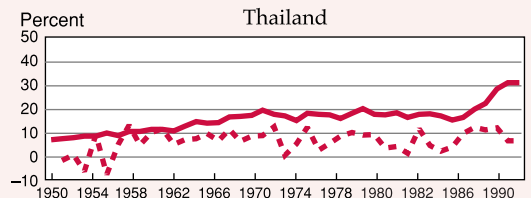
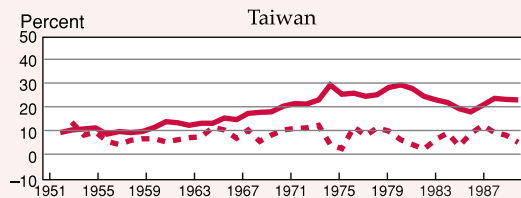
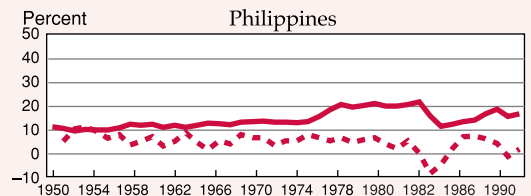
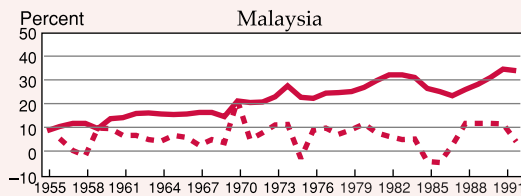
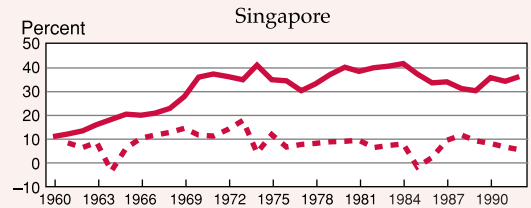
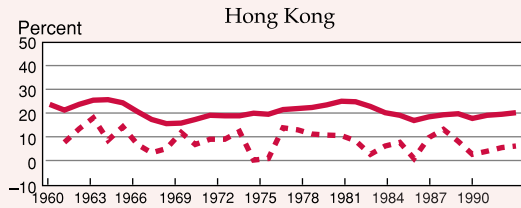
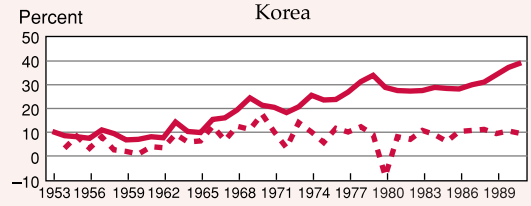
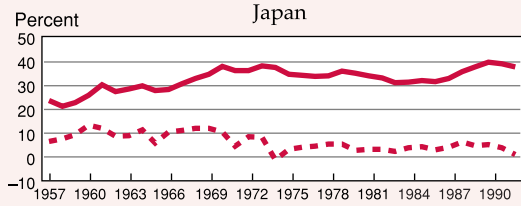
	1993	1994	1995	1996	1997
Hong Kong					
M3	13.9	12.3	15.1	11.1	12.5
Bank Credit	21.0	25.0	8.6	18.0	18.8
Nominal GDP	15.2	12.7	6.5	10.7	11.9
Indonesia					
M2	19.8	21.2	24.8	28.2	25.8
Bank Credit	21.0	22.9	21.7	22.7	n.a.
Nominal GDP	16.8	15.9	18.9	17.2	17.2
South Korea					
M3	21.5	21.9	20.1	18.9	16.1
Bank Credit	12.7	18.4	14.7	19.4	23.3
Nominal GDP	11.1	14.5	15.0	10.8	8.0
Malaysia					
M3	19.5	21.1	15.1	23.6	19.7
Bank Credit	7.8	10.3	26.5	28.0	26.3
Nominal GDP	11.2	15.2	15.0	14.2	10.9
Philippines					
M3	13.9	24.9	32.6	19.7	20.5
Bank Credit	28.5	19.0	31.3	40.3	30.8
Nominal GDP	9.1	14.8	12.6	15.2	11.6
Singapore					
M3	7.3	13.9	13.9	9.6	10.5
Bank Credit	12.0	12.8	17.4	17.3	19.5
Nominal GDP	16.4	15.1	11.2	8.3	9.4
Taiwan					
M2	16.1	16.2	11.6	9.2	8.3
Bank Credit	15.1	20.5	10.2	6.1	17.2
Nominal GDP	10.1	8.6	8.1	8.5	8.8
Thailand					
M2	16.1	13.0	17.3	16.6	13.6
Bank Credit	22.7	28.9	23.1	14.0	32.3
Nominal GDP	12.0	14.5	15.4	9.8	5.0

Source: IMF, Standard &amp; Poor's DRI.

*Investment/GDP and Growth in Real GDP*  
 Selected Benchmark Industrialized Countries



Selected East Asian Countries



— Gross Fixed Capital Formation/GDP  
 - - - Real GDP Growth

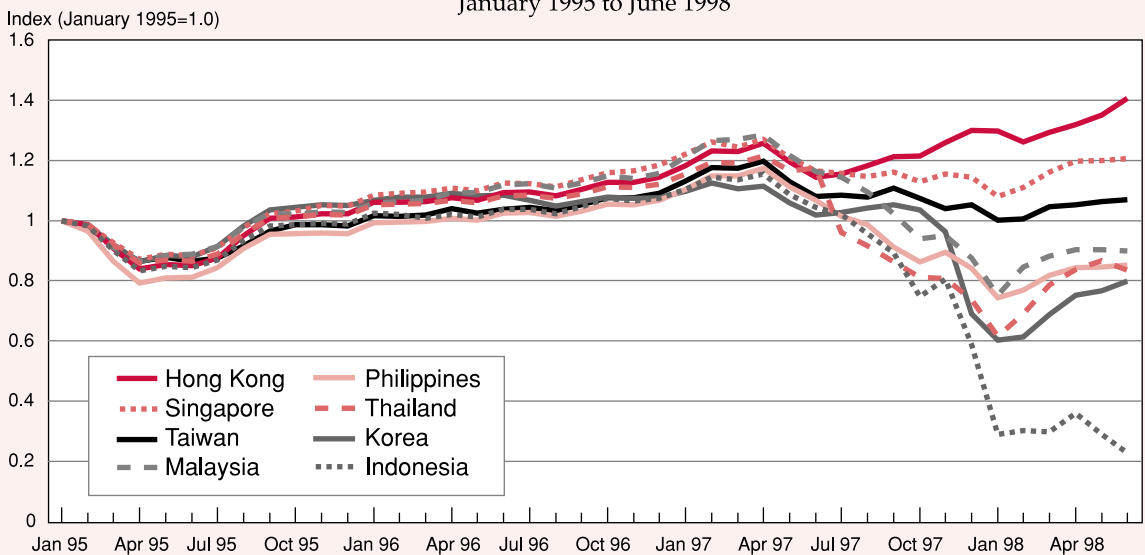
Source: Penn World Table Mark 5.6 (NBER Penn Table Database).

Appendix Table 2: Consumer Price Indexes: How Do They Measure Asset Prices?

Basic Concept	The CPI has become an almost universally accepted indicator of inflation as well as a barometer preferred by many policymakers. The CPI covers household <i>consumption</i> expenditures; excluded are household expenditures of other kinds, in particular those representing investment, saving, or transfers. Asset expenditures excluded by definition from the index include purchases of a dwelling and stocks. Thus, the CPI is designed rather narrowly to measure changes over time in the average retail prices of a fixed basket of goods and services that represent the consumption habits of households. Across countries, house prices are the only asset weighted prominently in the calculations, generally through owners' equivalent rent calculations derived from prices in the rental market.
United States	Home ownership: represented by owners' equivalent rent, defined as the cost of renting housing services equivalent to those provided by owner-occupied housing and calculated based on changes in the rent of rental units and by household insurance exclusive of the house structure. Rent: Derived from survey of 40,000 tenants. Weighting: As of December 1993, rent equals 27 percent of entire index.
Japan	Home ownership: Rental equivalence approach used to calculate the housing cost of owner-occupied dwellings. Rent: Monthly survey of a group of tenants in both the private and the public sectors. Weighting: As of 1995, rent equals 17 percent of entire index.
Finland	Home ownership: Represented by repair and maintenance costs, insurance premiums, interest on housing loans, depreciation, water charges, and the like. It does not include an imputation of housing benefits gained by owner-occupiers. Rent: A quarterly mail survey of 24,000 tenants is conducted to obtain data on changes in rents. Weighting: As of 1990, rent, repairs and maintenance, and home ownership costs equal 17 percent of index.
Norway	Home ownership: Represented by mortgage interest, repair and maintenance, insurance, water charges, and the like. No price survey of owner-occupied dwellings is conducted; thus, price changes are assumed to reflect rent changes. Rent: Data on rent for private houses are gathered quarterly for 1500 homes. Weighting: As of 1995, rent equals 16 percent of entire index.
South Korea	Housing expenditure: Calculated using a rental equivalence approach. Rent: Data collected as part of the "Family Income and Expenditure Survey." Weighting: CPI weights are rebased every five years: for 1990–1994, rent was weighted at 11.9 percent of total expenditure; since 1995, it has been weighted at 12.8 percent.

Appendix Figure 3

*East Asian Exchange Rates vis-à-vis the Yen*  
Yen per Foreign Currency Unit  
January 1995 to June 1998



Source: Board of Governors of the Federal Reserve System; Standard and Poor's DRI.

## References

- Archer, David J. 1997. "The New Zealand Approach to Rules and Discretion in Monetary Policy." *Journal of Monetary Economics*, vol. 39 (June), pp. 3–15.
- Ball, Laurence. 1994. "What Determines the Sacrifice Ratio?" In N. Gregory Mankiw, ed., *Monetary Policy: NBER Studies in Business Cycles*, vol. 29, pp. 155–82. Chicago: University of Chicago Press.
- Bank for International Settlements. 1996/1997. *67th Annual Report*.
- . 1997 and 1998. *The Maturity, Sectoral, and Nationality Distribution of International Bank Lending*. January and July.
- Bank of Japan. 1998a. "Utilization of Financial Institutions' Self-Assessment in Enhancing Credit Risk Management," *Quarterly Bulletin*, vol. 6, no. 1 (February), pp. 22–32.
- . 1998b. *Monthly Report of Recent Economic and Financial Developments*, June 26.
- Berg, Sigbjorn Atle. 1993. "The Banking Crises in the Scandinavian Countries." *Proceedings of the Annual Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, pp. 441–49.
- Bernanke, Ben S. and Mark Gertler. 1995. "Inside the Black Box: The Credit Channel of Monetary Policy Transmission." *The Journal of Economic Perspectives*, vol. 9, no. 4 (Fall), pp. 27–48.
- Bernanke, Ben S. and Frederic S. Mishkin. 1997. "Inflation Targeting: A New Framework for Monetary Policy?" *The Journal of Economic Perspectives*, vol. 11, no. 2 (Spring), pp. 97–116.
- Browne, Lynn Elaine. 1992. "Why New England Went the Way of Texas Rather Than California." *New England Economic Review*, January/February, pp. 23–41.
- Browne, Lynn Elaine and Rebecca Hellerstein. 1997. "Are We Investing Too Little?" *New England Economic Review*, November/December, pp. 29–50.
- Bruno, Michael. 1995. "Does Inflation Really Lower Growth?" *Finance & Development*, September, pp. 35–38.
- Carosso, Vincent P. 1970. *Investment Banking in America: A History*. Cambridge, MA: Harvard University Press.
- Chinn, Menzie. 1998. "Before the Fall: Were East Asian Currencies Overvalued?" NBER Working Paper No. 6491, April.
- Cline, William and Kevin Barnes. 1998. "Spreads and Risks in Emerging Markets Lending." Institute of International Finance Research Paper No. 97-1.
- Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. 1998. "What caused the Asian currency and financial crisis?" Mimeo, New York University.
- Dornbusch, Rudiger. 1996. "Commentary: How Should Central Banks Reduce Inflation?—Conceptual Issues." In *Achieving Price Stability: A Symposium Sponsored by The Federal Reserve Bank of Kansas City*, pp. 93–103. Jackson Hole, Wyoming, August.
- Fischer, Bernard and Helmut Reisen. 1993. *Liberalising capital flows in developing countries: Pitfalls, prerequisites, and perspectives*. Paris: Development Studies Centre, OECD.
- Fischer, Stanley. 1996. "Why Are Central Banks Pursuing Long-Run Price Stability?" In *Achieving Price Stability: A Symposium Sponsored by The Federal Reserve Bank of Kansas City*, pp. 7–34. Jackson Hole, Wyoming, August.
- Fisher, Irving. 1932. *Booms and Depressions*. New York: Adelphi.
- . 1933. "The Debt-Deflation Theory of Great Depressions." *Econometrica*, vol. 1, pp. 337–57.
- Frankel, Jeffrey. 1993. "Sterilization of money inflows: Difficult (Calvo) or easy (Reisen)?" Working Paper No. 93-024. Center for International and Development Economics Research, University of California, Berkeley, October.
- Friedman, Milton and Anna J. Schwartz. 1963. *A Monetary History of the United States, 1867–1960*. New York: National Bureau of Economic Research.
- Fuji Research Institute Corp. 1998. "Japan's Economic Outlook." June.
- Goodhart, Charles A.E. and José Viñals. 1994. "Strategy and Tactics of Monetary Policy: Examples from Europe and the Antipodes." In *Goals, Guidelines, and Constraints Facing Monetary Policymakers*, Jeffrey C. Fuhrer, ed., pp. 139–87. Federal Reserve Bank of Boston, Conference Series No. 38, June.
- Government of Japan. 1998. "Consumer Price Index: January 1997." Internet document ([www.stat.go.jp/158c.htm](http://www.stat.go.jp/158c.htm)), January 30.
- Institute of International Finance. 1998. "Capital Flows to Emerging Market Economies." April 30.
- International Monetary Fund. 1997. *World Economic Outlook*. Washington, DC: IMF, May, October and December.
- . 1998. *World Economic Outlook*. Washington, DC: IMF, May.
- Ito, Takatoshi and Tokuo Iwaisako. 1996. "Explaining Asset Bubbles in Japan." *Bank of Japan Monetary and Economic Studies*, vol. 14, no. 1 (July), pp. 143–93.
- Ito, Takatoshi and Anne O. Krueger, eds. 1996. *Financial Deregulation and Integration in East Asia*. NBER-East Asia Seminar on Economics, Vol. 5. Chicago, IL: University of Chicago Press.
- Jones Lang Wootton. 1998. *Asia Pacific Property Digest. The Market as at April 1998*. Market Analysis Series. May. Hong Kong.
- Japan Real Estate Institute. 1998. "Urbanland Price Index." March.
- Kähkönen, Juha. 1995. "Japan's Capital Flows" and "Movements in Asset Prices Since the Mid-1980s." In Ulrich Baumgartner and Guy Meredith, eds., *Saving Behavior and the Asset Price "Bubble" in Japan*, pp. 16–35 and 51–62. IMF Occasional Paper No. 124, April.
- Kindleberger, Charles P. 1978. *Manias, Panics, and Crashes, A History of Financial Crises*. New York: Basic Books.
- Kregel, J.A. "East Asia Is Not Mexico: The Difference between Balance of Payments Crises and Debt Deflations." Jerome Levy Economics Institute, Working Paper No. 235.
- Krugman, Paul. 1994. "The Myth of Asia's Miracle." *Foreign Affairs*, November/December, pp. 62–78.
- . 1998. "What happened to Asia?" Mimeo, MIT.
- Little, Jane. 1997. "Anatomy of a Currency Crisis." Federal Reserve Bank of Boston *Regional Review*, Fall, pp. 8–13.
- Lucas, Robert. 1981. "Econometric Policy Evaluation; A Critique." *Studies in Business Cycle Theory*, pp. 66–89.
- McKinnon, Ronald I. 1993. *The order of economic liberalization: Financial control in the transition to a market economy*. 2nd edition. Baltimore, MD: Johns Hopkins University Press.
- Miranda, Kenneth. 1995. "Does Japan Save Too Much?" In Ulrich Baumgartner and Guy Meredith, eds., *Saving Behavior and the Asset Price "Bubble" in Japan*, pp. 4–15. IMF Occasional Paper No. 124, April.
- Mishkin, Frederic S. and Adam S. Posen. 1997. "Inflation Targeting: Lessons from Four Countries." NBER Working Paper No. 6126, August.
- Obstfeld, Maurice. 1994. "The logic of currency crises." *Cahiers Economiques et Monétaires*, vol. 43, pp. 189–213.
- OECD *Economic Outlook*. Various years.
- OECD *Economic Surveys*. Finland. Various years.
- OECD *Economic Surveys*. Japan. Various years.
- OECD *Economic Surveys*. Korea. Various years.
- OECD *Economic Surveys*. Norway. Various years.
- Park, Woo Am. 1996. "Financial Liberalization: The Korean Experience." In Takatoshi Ito and Anne O. Krueger, eds., *Financial Deregulation and Integration in East Asia*, pp. 247–76. NBER-East Asia Seminar on Economics, Vol. 5. Chicago, IL: University of Chicago Press.
- Park, Yung Chul. 1996. "East Asian Liberalization, Bubbles, and the Challenges from China." *Brookings Papers on Economic Activity*, No. 2, pp. 357–71.
- Peek, Joe and Eric S. Rosengren. 1997. "Collateral Damage: Effects of the Japanese Real Estate Collapse on Credit Availability and Real Activity in the United States." Federal Reserve Bank of Boston Working Paper No. 97-5, September.
- Radelet, Steven and Jeffrey Sachs. 1998a. "The Onset of the East Asian Financial Crisis." Harvard Institute for International Development, mimeo, February.

- . 1998b. "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects." Paper presented at the Brookings Panel, Washington, D.C., March 26–27.
- Sachs, Jeffrey, Aaron Tornell, and Andres Velasco. 1996. "Financial Crises in Emerging Markets: The Lessons of 1995." *Brookings Papers on Economic Activity*, No. 1, pp. 147–217.
- Shigemi, Yosuke. 1995. "Asset Inflation in Selected Countries." *Bank of Japan Monetary and Economic Studies*, vol. 13, no. 2, pp. 89–130.
- Smets, Frank. 1997. "Financial Asset Prices and Monetary Policy: Theory and Evidence." Bank for International Settlements Working Paper No. 147, September.
- Summers, Robert and Alan Heston. 1991. "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950–1988." *Quarterly Journal of Economics*, vol. 106, no. 2 (May), pp. 327–68.
- Suzuki, Yoshio, ed. 1987. *The Japanese Financial System*. New York: Oxford University Press.
- Weinstein, David E. and Yishay Yafey. 1998. "On the Costs of a Bank-Centered Financial System: Evidence from the Changing Main Bank Relations in Japan." *Journal of Finance*, vol. 53, April, pp. 635–72.
- Woo, Wing Thye and Kenjiro Hirahama. 1996. "Monetary Autonomy in the Presence of Capital Flows: And Never the Twain Shall Meet, Except in East Asia?" In Takatoshi Ito and Anne O. Krueger, eds., *Financial Deregulation and Integration in East Asia*, pp. 307–29. NBER-East Asia Seminar on Economics, Vol. 5. Chicago, IL: University of Chicago Press.
- Young, Alwyn. 1995. "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience." *Quarterly Journal of Economics*, CX (August), pp. 641–80.