The East Asian Crisis:  
A Retrospective Look

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Indexes of East Asian Exchange Rates:
Local Currency per US$ (January 2, 1997=100)

Indices of East Asian Exchange Rates
(Local Currency per U.S. Dollar, 1/2/97=100)

C. Yuan
HK$
I. Rupiah
K. Won
RM
P. Peso
S$
NT$
T. Baht
Japan Yen

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Indexes of East Asian Exchange Rates:
Local Currency per US$ (January 2, 1997=100)
Indexes of East Asian Exchange Rates: Local Currency per US$ (April 1, 1995 = 100)
The Basic Questions

- What were the causes of the crisis?
- Is a real recovery in sight?
- What lessons can be drawn?
- What measures can be adopted to minimize the probability of a recurrence?
- What are the prospects of future economic growth?
Early Warning Signals

◆ Lau and Park, “Is There a Next Mexico in East Asia?,” Beijing, China, 1996
◆ Thailand and Philippines were identified as the most likely candidates as the next Mexico, followed by S. Korea and Indonesia
◆ China, Hong Kong, Singapore and Taiwan were identified as the least likely candidates as the next Mexico
◆ Indicators of potential vulnerability, e.g.
  ◆ stock of short-term liabilities (including portfolio investment) relative to reserves
  ◆ Interest rate differential between domestic and foreign currency-denominated loans
◆ Indicators of economic performance, e.g.
  ◆ Level and rate of change of the marginal efficiency of capital (rate of return)
Fundamental Macroeconomic Causes of the East Asian Currency Crisis

- Savings-investment imbalance--also reflected as current account imbalance
- Dependence on short-term foreign capital (portfolio investment--both equity and debt instruments--and loans) by private investors
  - Equity is better than debt
  - Direct investment is better than portfolio investment
  - Insolvency caused by the revaluation of foreign-currency denominated debts and the rise in the rate of interest
  - Domino effects of insolvency and bankruptcy
  - Problems magnified by high leverage (or high debt to equity ratio)
- Inadequacy of foreign exchange reserves (working capital of a country) for supporting imports, debt service, and (potential) net short-term capital outflows
- Real exchange rate appreciation (loss of competitiveness) due to a domestic rate of inflation higher than the U.S. rate of inflation
The Savings Rates of Selected East Asian Economies

The Savings Rate as a Percent of GDP

- China
- Hong Kong
- Indonesia
- Korea, Republic of
- Malaysia
- Singapore
- Taiwan
- Thailand
- Philippines
- Mexico


Percent
The Savings-Investment Gap
Selected East Asian Economies

The Savings-Investment Gap as a Percent of GDP

- China
- Hong Kong
- Indonesia
- Korea, Republic of
- Malaysia
- Philippines
- Singapore
- Taiwan
- Thailand
- Mexico

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Current Account Surplus (Deficit) as a Percent of GDP

The Current Account Surplus as a Percent of GDP

- China
- Hong Kong
- Indonesia
- Korea, Rep. of
- Malaysia
- Philippines
- Singapore
- Taiwan
- Thailand
- Mexico

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Composition of Foreign Investment: Thailand (Quarterly Data)
Composition of External Debt
Thailand

Stock of External Debt: Thailand

- Long-term
- Short-term

Billion U.S.

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External Debt and Foreign Exchange Reserves
Thailand

Thailand's External Debt vs. Foreign Exchange Reserves

- Total external debt
- Foreign exchange reserves

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Composition of Foreign Investment: South Korea (Quarterly Data)

Composition of Foreign Investment: Republic of Korea

Foreign Direct Investment
Foreign Portfolio Investment

Million US$
Composition of External Debt
South Korea

Stock of External Debt: Korea

Billion U.S.

Long-term
Short-term


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Composition of Foreign Investment: China

Composition of Foreign Investment, China

- Foreign Portfolio Investment
- Foreign Direct Investment


Billion US$
Composition of Foreign Investment: China (Quarterly Data)
Composition of External Debt
China

Stock of External Debt: China
Bank for International Settlements Data

Long-term
Short-term

Million U.S.
China's External Debt vs Foreign Exchange Reserves

- **Billion US$**
- **Year:** 1980 to 1999

- **Total external debt**
- **Foreign exchange reserves**
Composition of Foreign Investment: Japan (Quarterly Data)

Composition of Foreign Investment: Japan

Billion US$

-30

Foreign Portfolio Investment

Foreign Direct Investment

[Bar chart showing the composition of foreign investment in Japan, with data from 1986 Q1 to 1999 Q1, highlighting foreign portfolio investment and foreign direct investment.]
Inadequacy of Foreign Exchange Reserves

- Traditional yardstick of 3-6 months of imports no longer adequate for some countries because of the magnitudes of potential movements in the capital accounts (foreign direct and portfolio investment, short- and long-term loans)
- International Monetary Fund still lists 13 weeks of imports as a standard
- Potential disruptions in the foreign exchange and capital markets caused by the quick inflows and outflows of large pools of hot money
- Insolvency caused by illiquidity
- Simulations by Lau, Li and Qian (1999) suggest that foreign exchange reserves can be considered adequate (in the absence of capital controls) only if it is approximately equal to 10 months of imports
Foreign Exchange Reserves as a Percent of Annual Imports

![Graph showing foreign exchange reserves as a percent of imports for various countries from 1986 to 1997.](image-url)
Real Exchange Rate Movements

- A real exchange rate is defined as the number of constant-price local currency units per unit of constant-price U.S. dollar
- Example
  - In 1990, the Thai Baht/US Dollar exchange rate = 25.6; in 1996, it was 25.3, virtually unchanged
  - During the same period, the GDP deflator increased by 17% in the United States and 33% in Thailand
  - Thus, while 1 US$ could purchase 25.6 1990 Baht worth of goods in 1990, it could only purchase 19.0 (=25.3/1.33) 1990 Baht worth of goods in 1996 (Thai goods have thus become more expensive!)
  - Finally, 1 1990 US$ is worth more than 1 current US$ in 1996 because of inflation in the U.S., thus, 1 1990 US$ could buy 22.3 (=25.3/1.33*1.17) 1990 Baht worth of goods in 1996
- We conclude the real exchange rate of the Thai Baht has appreciated (The same U.S. good can be exchanged for less Thai good)
Rates of Inflation Relative to the United States (without Indonesia)
Real Exchange Rate Movements

Indexes of East Asian Real Exchange Rates
(Local Currency per U.S.$, 1986=100)

- China
- Hong Kong
- Indonesia
- Korea
- Malaysia
- Philippines
- Singapore
- Taiwan
- Thailand

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Real Exchange Rate Movements (without Indonesia)

Indexes of East Asian Real Exchange Rates (without Indonesia) (Local Currency per U.S.$, 1986=100)

- China
- Hong Kong
- Korea
- Malaysia
- Philippines
- Singapore
- Taiwan
- Thailand

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Fundamental Microeconomic Causes: Borrowing Too Much, Short-Term and in Wrong Currency

- Maturity mismatch--borrowing short and investing (lending) long
- Currency mismatch--revenue and cost (liability) in different currencies
  - Vulnerability magnified by high debt to equity ratio
  - Insolvency caused directly or indirectly by declines in the exchange rates
  - Oversold currencies create unnecessary bankruptcies and discourage re-capitalization and re-structuring
- Moral hazard on the parts of both lenders and borrowers
  - Past bailouts (Latin American loans, Mexican loans) of developed country lenders encourage moral hazard on the part of lenders
  - Implicit guarantee of banks and enterprises “too big to fail” by governments encourage moral hazard on the part of borrowers
- “Herd mentality”--too much money chasing too few good projects leading to mis-pricing by developed country investors and lenders (it is better to make the same mistake as everyone else)
What is New?

(1) New Channels for Contagion!

- The speculative attacks on the New Taiwan Dollar (10/17/97) and the Hong Kong Dollar (10/23/97) show that even **ECONOMIES WITH SOUND FUNDAMENTALS ARE NOT IMMUNE**!
- Spread to South Korea, Latin America, and Russia
- Traditional Channels for Contagion (through trade)
  - Competitive devaluation
  - Nervous domestic traders and investors (rational panic)
- New Channels for Contagion (through short-term capital flows)
  - Predatory speculation by hedge funds
  - Domino effect of cross-country lending and re-lending
  - The confidence factor--withdrawals by indiscriminate investors of developing (emerging) countries equity and debt; reduction of outstanding credit by multinational banks
Predatory Speculation (1)

- Large pools of hot money (3,000-4,000 hedge funds with aggregate capital of US$300 billion+) that can move (small) markets
- Formulae for almost risk-free profits, especially in economies that are expected to defend their exchange rates (transactions must be large enough to be a credible threat to the exchange rates)
- (Short) Sales of large quantities of local currency induce purchases by local central bank or monetary authority
- Such purchases by the central bank or monetary authority cause the local money supply to contract and liquidity to tighten, sending the short-term rate of interest up
- The local central bank or monetary authority may also raise the rate of interest directly to discourage the conversion of local currency-denominated assets into foreign currency-denominated assets
Predatory Speculation (2)

- For example:
  - Simultaneous shorting of currency and going long on interest rate futures (Attack on the British Pound, 1992)
  - Simultaneous shorting of currency and stock (or stock index futures), in either spot or forward markets or both (Attacks on Hong Kong)
  - Shorting the stock market and then selling the domestic currency proceeds for U.S. dollars
  - Simultaneous longing of currency and stock or stock market index

- Predatory speculation can occur and succeed independently of the economic fundamentals if the resources of the speculators are sufficiently large relative to the size of the market
- Short sales of forward contracts in the local currency will have the same effect through arbitrage (Buyers of forward contracts will sell short in the spot market)
- Depresses the exchange rate and increases its volatility, and hence the interest rate risk premium
An Example:
Hong Kong

Relationship between Exchange Rate, Stock Market Index and Interest Rate, Hong Kong

- Exchange Rate Index, 1/2/97=100
- Stock Market Index, 1/2/97=100
- Interest Rate (right scale)
What is New? (2) Contagion Leading to Synchronization of Down Turns

- Over the last decade, the proportions of East Asian exports to other East Asian economies have been increasing rapidly.
- By the late 1990s, approximately 50% of the exports of the East Asian economies are destined for other East Asian economies.
- All East Asian economies, with the exception of China and Taiwan, experienced rises in the rate of interest and downturns in economic activities at the same time, which in turn caused significant reductions in the demands for one another’s exports, further exacerbating their recessions.
Was “Crony Capitalism” or the Primitive Financial System the Culprit?

- The real mistake was to borrow too much short-term and in the wrong currency
- Even a perfectly efficient enterprise cannot withstand the increase in debt servicing required due to the massive exchange rate devaluation
- Japan, despite its massive devaluation between 1995 and mid-1998, has been able to muddle through because its firms have little net foreign debt
- Hong Kong, Singapore and Taiwan have also escaped relatively unscathed because they did not and do not have significant net foreign debt, especially short-term debt, relative to their foreign exchange reserves
- China has not been significantly affected because it retains capital control and its foreign debt is mostly medium to long-term
Was “Crony Capitalism” or the Primitive Financial System the Culprit?

- The financial systems collapsed in the affected countries because of the currency crisis--whatever weaknesses they might have had were not the direct causes of the crisis.
Leading Indicators of Recovery

- Stabilization of the exchange rate
  - Capital controls have been instituted in Malaysia
  - Hedge funds are no longer active
- Decline in the rate of interest
- Rise in the stock market
- Improvement in the balance of payments
- Rise in the official foreign exchange reserves
- Deceleration in the rate of decline of real GDP
- Leveling of the unemployment rate
- Narrowing of yield spread on U.S. dollar-denominated sovereign debt relative to U.S. Treasury securities
- Upgrading of credit ratings by rating agencies such as Moody’s, Standard & Poor and Fitch IBCA
Prospects for Recovery

- For most of the East Asian economies, the bottom has been reached (0% rate of growth) in 2Q/1999
- The recovery is most tentative in Indonesia, with its political problems
- In quantity terms, exports have been growing very rapidly
- Foreign exchange reserves have been largely replenished
- Inflation caused by the devaluation has largely subsided
- The stock markets have recovered
- The recovery has been much stronger than expected because of synchronization across the East Asian economies
Short-Term Rates of Interest

Short-Term Rates of Interest, Selected East Asian Countries
(percent p.a.)

CHINA
HONG KONG
INDONESIA
KOREA
MALAYSIA
PHILIPPINES
SINGAPORE
TAIWAN
THAILAND
JAPAN
Short-Term Rates of Interest (without Indonesia)

Short-Term Rates of Interest, Selected East Asian Countries (percent p.a.)

- CHINA
- HONG KONG
- KOREA
- MALAYSIA
- PHILIPPINES
- SINGAPORE
- TAIWAN
- THAILAND
- JAPAN

Percent per annum
Quarterly Rates of Growth of Exports

Year-over-Year Quarterly Rates of Growth of Exports in U.S. Dollars (Percent)

China
Hong Kong
Indonesia
South Korea
Malaysia
Philippines
Singapore
Taiwan
Thailand
Japan

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Quarterly Rates of Growth of Imports

Year-over-Year Quarterly Rates of Growth of Imports in U.S. Dollars (Percent)
The Current Account Balance

The Current Account Balance, Billion US$

China
Hong Kong
Indonesia
Korea, Rep. of
Malaysia
Philippines
Singapore
Taiwan
Thailand
Mexico

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Quarterly Rates of Growth of Real GDP
Selected East Asian Economies

Quarterly Rates of Growth of Real GDP, Year-over-Year, Selected East Asian Economies

Quarter

Annualized Rates in Percent

China
Hong Kong
Indonesia
Korea
Malaysia
Philippines
Singapore
Taiwan
Thailand
Japan

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Rate of Inflation
(Consumer Price Index)

Rate of Change of the Consumer Price Index (Year-over-Year)

Percent per annum

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Rate of Inflation (Consumer Price Index) -- without Indonesia

Rate of Change of the Consumer Price Index (Year-over-Year)

Percent per annum

CHINA
HONG KONG
JAPAN
KOREA
MALAYSIA
PHILIPPINES
SINGAPORE
TAIWAN
THAILAND

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Indexes of East Asian Stock Market Indexes: Local Currency (January 2, 1997=100)
How Robust is the Recovery?

External environment

- Since 3Q/1998, hedge funds had a “credit crunch” due to losses, net redemption and curtailment of available credit lines in the third quarter of 1998--the collapse of the Russian ruble and the “Long-Term Capital Management” crisis.
- The U.S. economy has been exceptionally strong but an asset-price bubble appears to be in the making and the economy may be heading towards a slowdown.
- The recovery of the Japanese economy is not imminent and likely to take some time; however, the Yen has recovered from its low of almost 150 Yen/US$ to stabilize around 100 Yen/US$.
- The Chinese economy grew 7.8% in 1998 and 7.1% in 1999. Chinese exports have resumed its growth. The Renminbi should not need to be devalued.
Prospects for Recovery?
What Needs to be Done (1)

- The recovery is supported by the growth in public investment and in exports
- Private consumption demand has gradually revived because of lower rates of interest and stabilization of unemployment
- Domestic fiscal stimulus necessary because of weak domestic investment demand—International Monetary Fund conditions notwithstanding (IMF position on deficit financing by the affected East Asian countries has changed), e.g., South Korea, Thailand
- Turning around expectations and providing incentives are the keys to stimulating private consumption and new private investment
Prospects for Recovery?
What Needs to be Done (2)

- Recapitalizing the domestic banks so that new loans to new projects are possible
  - Bailing out of old failed projects should be avoided
  - Recapitalization by the government should require capital contribution and risk-sharing by new or existing shareholders to avoid moral hazard
- Maintaining domestic political and social stability
Prospects for Recovery?

- The real devaluation in the East Asian currencies present new opportunities for profitable investments once they are stabilized.
- The real risk is excessive tightness—the East Asian central banks must walk a tight rope between not bailing out bad projects and choking off new projects.
- The political economy—who will bear the costs—may prove to be the most difficult problem.
Prospects for Recovery?
Lessons from the Mexican Experience

- Recovery took 24 months
- Nominal exchange rate permanently lowered; real exchange rate not significantly changed
- Additional risk premium on the rate of interest
- Decisive action necessary for stabilization and for maintenance of domestic confidence
- Selective loosening of credit essential for facilitating recovery
- A strong, united government is better suited for crisis management
- Advantages and disadvantages of East Asia relative to Mexico--proximity to and relations with U.S. (NAFTA), savings rate, educational level, degree of domestic price and wage rate rigidity, degree of union power
Prospects for Recovery?
Possible Enhancements

- Simultaneous coordinated fiscal expansions by East Asian economies
  - Utilization of excess idle capacity to produce real output
  - A signal to the non-state sector that it is time for undertaking new investments

- An East Asian currency stabilization fund
  - As the market maker of the last resort (maintaining an orderly market)
  - Providing a smoothing function (reduction of volatility rather than flexibility)
  - Preventing excessive overshooting in both the upward and the downward directions
  - As a partial deterrent to predatory speculation
Lessons: A Currency Crisis Inducing a Financial Crisis

- The problem arose from insufficient liquidity in terms of foreign exchange
- Unexpected outflow of short-term capital caused the exchange rate to plunge
- A “bank run” on foreign exchange ensued
- Financial insolvency caused by the resulting revaluation of the foreign-currency denominated debt and the rise in the rate of interest (due to expected further devaluation and increased volatility of the exchange rate)
- Domino effect of insolvency and bankruptcies
Lessons:
The Hazards of Short-Term Foreign Capital

- Over-dependence on foreign capital, especially short-term foreign capital, makes an economy and its exchange rate vulnerable
- Foreign direct investment is better than foreign portfolio investment or loans because it is less mobile
- Long-term loans is better than short-term loans because they are not subject to immediate withdrawal
- Currency and maturity mismatch by domestic borrowers aggravates the problem
- Short-term foreign-currency denominated loans should be carefully monitored and controlled in order to avoid the compounding of currency mismatch by maturity mismatch
- Short-term foreign funds are inherently different from short-term domestic funds because the former is much more likely to leave at the first sign of real or imagined trouble
Lessons: Foreign Exchange Reserves and Real Exchange Rate Appreciation

- An adequate level of foreign exchange reserves should be maintained (10 months of imports)
- A fixed exchange rate and chronically higher relative inflation cannot be compatible in the long run
Lessons:
Excessive Leverage Should be Discouraged

- Excessive leverage of enterprises magnifies the effects of a sharp devaluation and the resulting rise in the rate of interest
- Excessive leverage encourages moral hazard (recklessness) on the part of the borrowers
- The domino effect of excessive leverage on the financial system
- Excessive leverage also enables the hedge funds to engage in predatory speculation on a large scale
- Globalization of accounting standards and disclosure requirements
  - insistence of financially responsible auditors by lenders
- Global credit reporting system for large borrowers
  - voluntary reporting by lenders of large credit transactions of large borrowers (say, transactions exceeding $500 million each) to a central bureau operated by a consortium of global lenders
Lessons: Containing Contagion

- Predatory speculation by hedge funds should be monitored and controlled -- through disclosure and margin requirements
- Worldwide or region-wide currency stabilization facility
Lessons: Post-Crisis Options for Exchange Rate Regimes

- Large and deep individual markets--United States, Japan
  - Stabilization of a freely-floating currency is difficult unless it has a large and deep market relative to the short-term capital flows

- Currency areas--The Euro
  - Even before the Euro there was the EMS “snake” pegged to the DM (German Mark)--evidence that small and shallow markets for individual currencies can be too volatile even for developed economies such as Austria, Belgium and the Netherlands

- Capital control--Japan before 1980, China, Malaysia
  - Current account convertibility, long-term capital convertibility, limited short-term capital convertibility
Post-Crisis Options for Exchange Rate Regimes

- True dollarization (Panama) and quasi-dollarization (Hong Kong, Argentina)
  - True dollarization implies that the U.S. dollar will be legal tender for all obligations and contracts can be denominated in U.S. dollars
  - Hong Kong and Argentina with a fixed U.S.$ peg are not quite truly dollarized but is very close to being so
- Benefits:
  - Insulation from exchange rate volatility
  - Promotes long-term FDI as well as foreign portfolio investment
  - The rate of interest and the rate of inflation will be at U.S. levels if credible
  - Facilitates foreign trade
- Costs:
  - No more monetary policy (neither money supply nor interest rate can be independently controlled)
  - Fiscal policy constrained by the ability to issue US$ denominated government notes and bonds
- The U.S. benefits from seignoirage, both direct and indirect
Problems of a Flexible Exchange Rate for a Small Economy

- A thin market—total volume small relative to the size of hedge funds and other pools of hot money
- Possibility of market manipulation due to lack of regulation and transparency
- Central bank has to assume the role of market-maker
- A credibly adequate level of foreign reserves (and/or standby commitment from an international or regional stabilization facility) is required
The Size of the Global Foreign Exchange Market

- According to the Bank for International Settlements data, London is the largest foreign exchange market in the world with average daily turnover of approximately $650 billion in 1998.
- London is larger than the New York and Tokyo markets combined.
- There are between 3,000 and 4,000 hedge funds, at a conservative estimate of US$100 million of equity capital each, with an estimate of aggregate capital of between US$300-400 billion.
- Large and well known funds such as Quantum Fund (Soros) and Tiger Fund have approximately US$20 billion worth of capital.
- With leverage, the hedge funds can collectively undertake transactions as high as US$10 trillion (Total U.S. stock market capitalization is US$12.5 trillion).
Could the East Asian Currency Crisis be Averted?

- The currency crises in some countries (e.g. Thailand and South Korea) probably could not be averted.
- However, the severity of the crisis in certain countries could probably have been reduced if the exchange rate could have been stabilized sooner, that is, if the exchange rate had not overshot by so much (most East Asian currencies had recovered approximately half of their losses at the troughs).
- Implicit are the assumptions that multiple self-fulfilling rational expectations equilibria are possible and that some such equilibria are better than others.
Can a Recurrence be Prevented?
Possible Near-Term Measures (1)

- Reduction of unpredictability of portfolio capital flows
  - Use of Global or American Depository Receipts (GDRs and ADRs) and (Home) Country Depository Receipts (CDRs)
- Elimination of subsidies for short-term capital inflows, if any
- A Tobin-like tax to encourage lengthening of maturities on foreign currency-denominated loans
  - A fixed fee (e.g., 0.5%) on foreign currency loans without underlying trade or direct investment activities to encourage longer and staggered maturities
  - The fee is payable to the central bank/monetary authority and such a loan is said to be “registered”--this also ensures proper disclosure of the loan
  - Such foreign currency loans will be accorded special priority in the event of unforeseen circumstances such as another currency crisis
  - The fees can be maintained in a reserve for the financing of “penalty” rates of interest in the event the IMF Contingent Credit Line has to be drawn down
Possible Near-Term Measures (2)

- Protecting the interests of long-term investors (both domestic and foreign)
  - Provision of low-cost, non-transferable “natural” exchange rate hedges
- Standby instruments for sterilization of short-term capital flows
  - Open-market/discount window operations
  - Changes in reserve requirements for different types of assets
  - Direct (Central Bank) and indirect (non-Central Bank) government purchases and sales of foreign and domestic currencies
- Maintenance of higher levels of foreign exchange reserves
Possible Near-Term Measures (3)

- Prevention of moral hazard on the part of the foreign lenders
  - Disavowal of implicit guarantee of private loans
  - Partial debt-equity swap in settlement of existing liabilities
  - Lenders from developed economies should have their loan portfolios in developing countries risk-rated by their supervisory institutions
- Prevention of moral hazard on the part of the domestic borrowers and lenders—reduction of leverage
  - New disclosure rules on the beneficial ownership, sales and purchases, and hypothecation of shares on principal officers and shareholders (e.g. 5% or US$ 10 million) of publicly listed enterprises
  - Setting of maximum leverage ceilings
  - Disavowal of implicit guarantee of private loans or the doctrine of “too big to fail”
  - Intensification of domestic prudential regulation of financial institutions
  - Rethinking of comprehensive implicit deposit insurance (perhaps with a ceiling on the size of deposits)
Possible Near-Term Measures (4)

- Credible pre-commitment to a stable monetary policy
  - E.g., an inflation target, or a marginal currency board rule
- Encouragement of better disclosure
  - Imposition by lenders of a requirement of certification of financial statements by acceptable auditors, e.g., the “Big Five”
  - Adoption and enforcement of generally accepted accounting principles
Possible Near-Term Measures (5)

- Regulation of the foreign exchange, stock and futures markets to reduce leverage, prevent manipulation, and discourage predatory speculation
  - Flexible margins, in the form of local currency, on foreign exchange spot and forward purchases and sales in the absence of underlying real transactions
  - Regulation of non-deliverable forward (NDF) trading by residents
  - High margin requirements, in the form of local currency on stock, stock futures, stock index futures, and options on stocks and futures purchases and short sales
  - Regulation on borrowing and lending of stocks and short sales of stocks (e.g. the uptick rule, the “married put option”, etc.)
  - Transparency and disclosure requirements (for large positions)
  - Institution of “circuit breakers” in the stock and future exchanges
  - Enforcement of timely settlement and clearing regulations (e.g., in Hong Kong, settlement date is t+2)
  - Merging the stock and stock options and futures exchanges to facilitate market clearing
Possible Long-Term Measures: Individual Economies

- Re-examination of the costs and benefits, as well as the timing, of full capital account convertibility for developing economies
- Capital control--current-account and long-term capital-account convertibility but controls on short-term capital flows
- True or virtual “Dollarization” (with a currency board)
  - “Dollarization” with a fixed peg and a currency board, e.g. Hong Kong, Argentina
  - “Dollarization” a la Panama
  - Monetary union with the United States
Possible Long-Term Measures: Collective

- Augmenting the foreign exchange reserves potentially available for the stabilization of the exchange rate in face of speculation
  - Mutual aid arrangements (e.g. direct repurchase agreements among central banks to be exercised in tandem)
  - Direct settlements among East Asian countries in the currencies of the respective countries
- An East Asia-wide currency stabilization facility
  - As the market maker of the last resort (maintaining an orderly market)
  - Providing a smoothing function (reduction of volatility rather than flexibility)
  - Preventing excessive overshooting in both the upward and the downward directions
Possible Long-Term Measures: Collective

- The Group-of-Seven Plan for solving or averting crises
  - Contingent Credit Line from the International Monetary Fund (lender of last resort) as a source of additional liquidity
    - Pre-approved unlimited facility conditional on economic conditions and policies (e.g., debt-management, transparency, corporate governance, financial sector solidity)
  - A last-minute review
  - Rate of interest 3 percentage points higher than standard IMF loans, rising to 5 percentage points by 1/2 percentage point increments every 6 months
- Bilateral loans
- Guarantees of developing country bonds by the World Bank, Asian Development Bank, and individual countries (e.g., Japan)
- Contribution by private sector (e.g., international commercial banks)
Possible Long-Term Measures: Collective

- Preventing future crises through better information
  - Global accounting standards
  - Greater disclosure of government and central bank finance
  - Global credit reporting system on large borrowers to prevent excessive leverage on the part of both developing country borrowers and speculators, including hedge funds
- Coordination of stock and futures market regulations on margin requirements, investor and firm disclosure, and short sales, across countries
- “Currency Area” options
  - An Asian “snake”? 
  - A system of linked currency boards?
  - A role for the Japanese Yen, the Chinese Yuan?
The Major Uncertainties

- The movements of the Yen-Dollar and Yuan-Dollar exchange rates
- The rates of growth of the U.S. and Japanese economies
- The U.S. rate of interest (one instrument, two targets--the prices of goods and the prices of assets)
- The possibility of a bursting of the U.S. asset prices bubble (Could the reliance on an accommodative easing by the Federal Reserve Board after such an event create its own moral hazard?)
- The return of the hedge funds (are bubbles building in the East Asian stock markets again?)
# Rates of Growth of Inputs & Outputs of the East Asian Developing & the G-7 Countries

## Table 3.1: Average Annual Rates of Growth of Real GDP, Capital, Labor and Human Capital (percent)

*(Extended sample period)*

<table>
<thead>
<tr>
<th>Country</th>
<th>Period</th>
<th>GDP</th>
<th>Capital Stock</th>
<th>Utilized Capital</th>
<th>Utilized Employment</th>
<th>Labor Hours</th>
<th>Human Capital</th>
<th>Average Human Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>66-95</td>
<td>7.4</td>
<td>8.8</td>
<td>8.6</td>
<td>2.6</td>
<td>2.4</td>
<td>4.8</td>
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Is East Asian Economic Growth Sustainable?

- Neither miracle nor a mere bubble
  - Economic growth experience replicated in different East Asian economies
  - Sustained economic growth over decades
  - Recent crisis due to many factors, of which “irrational exuberance” is only one
  - Economic fundamentals remain sound--high savings rates, investment in human capital
- Past economic growth attributable to growth in inputs, particularly the efficient and rapid accumulation of physical capital
- Considerable room for continuation of rapid tangible inputs-driven economic growth--tangible capital per unit labor still lags behind the developed economies
- Intangible capital per unit labor lags even further behind
- Because of its complementarity with tangible capital, investments in intangible capital can retard the decline in the marginal productivity of tangible capital