

The World Economy:
Near-Term Developments
and
Long-Term Trends

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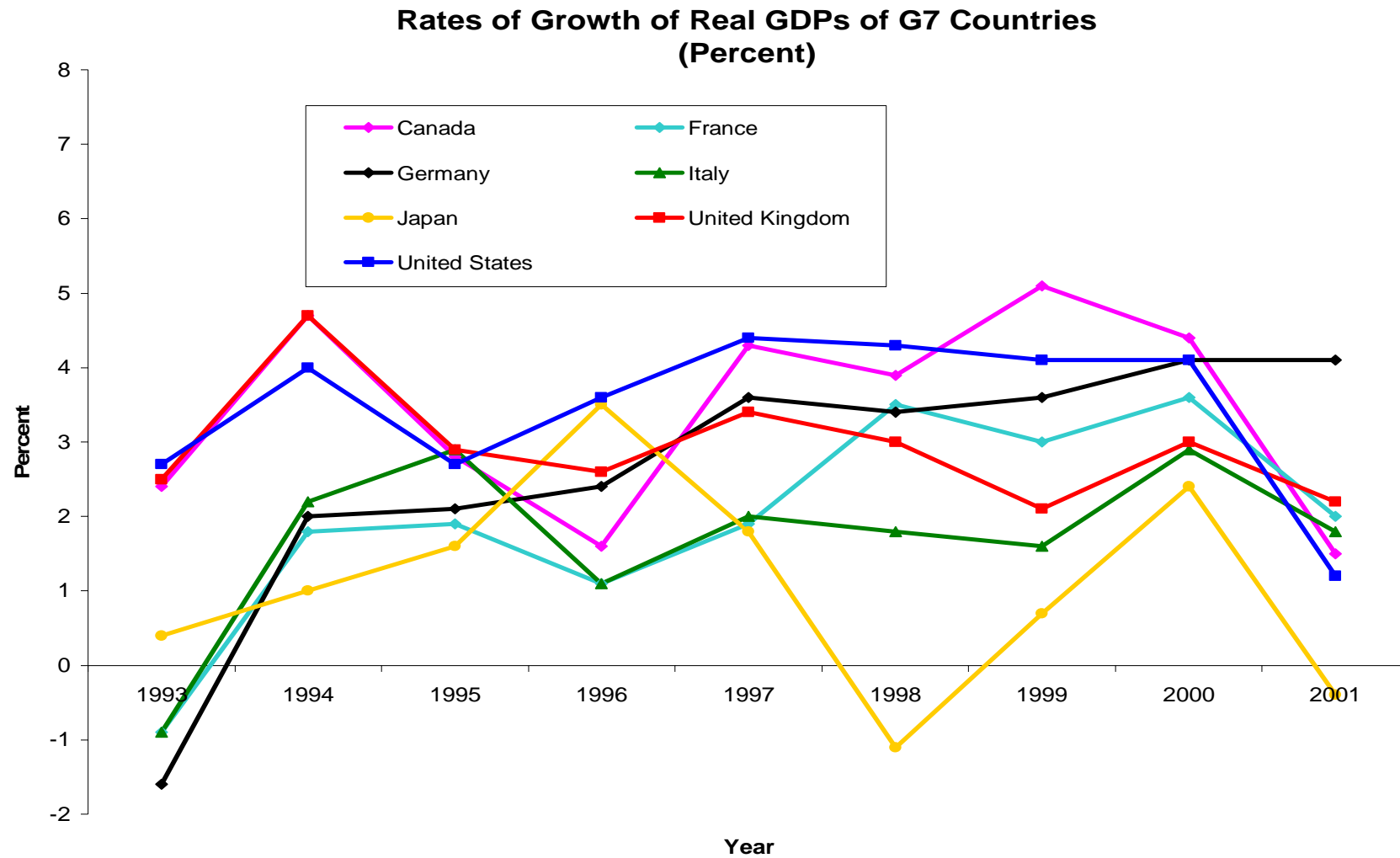
A Preview

- ◆ The Economic and Financial Situation of the World
- ◆ Long-Term Trends
 - ◆ Information and Communication Technology Revolution
 - ◆ Expansion of the span of control
 - ◆ Increased speed of adjustment
 - ◆ Increased returns on intangible capital, including human capital, relative to labor
 - ◆ The increasing unimportance of location
 - ◆ New ways of aggregating markets
 - ◆ Globalization
 - ◆ Integration and expansion of markets and enhanced economies of scale
 - ◆ Increased de-verticalization or fragmentation of production
 - ◆ Increased mobility of capital
 - ◆ Impact of the Entry of China and India
 - ◆ Large domestic markets as potential platforms for new alternative technologies and standards
 - ◆ Lack of upward pressure on the wage rate of unskilled labor
 - ◆ Economic integration of East Asia
 - ◆ Free Trade Area
 - ◆ Co-operation among currencies and eventually approximately fixed parities
 - ◆ Prospects for East Asian economic growth
- ◆ U.S. Accounting Scandals and Lessons

The Economic and Financial Situation of the World

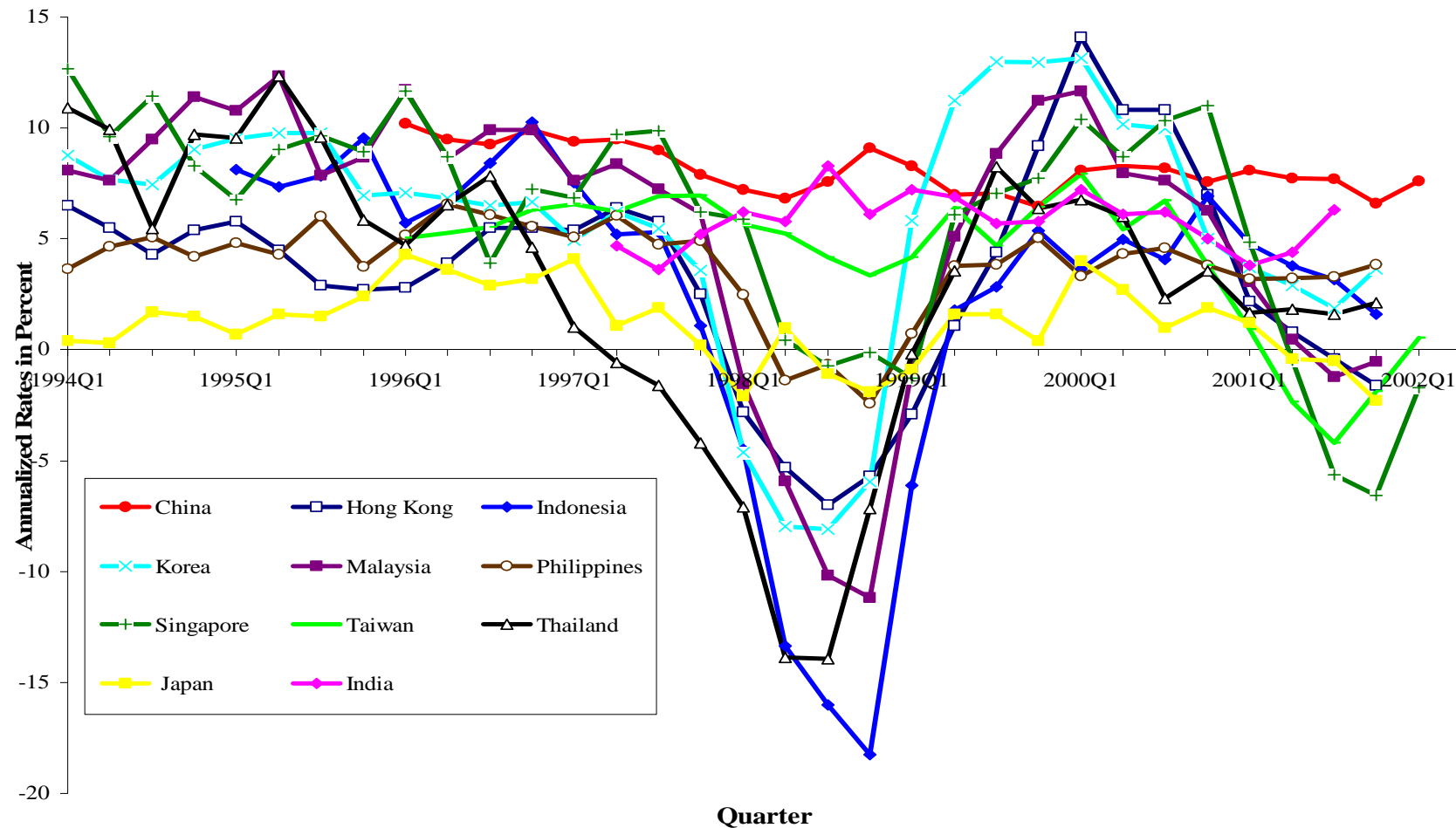
- ◆ Global slowdown with the exception of China and India
- ◆ Uncertainty, uncertainty, uncertainty—the anti-terror campaign, an imminent war with Iraq, the Israel-Palestine conflict
- ◆ The “core” rates of inflation remain low or negative
- ◆ The nominal rates of interest also remain low
- ◆ The unemployment rates have been rising
- ◆ New business investment on hold
- ◆ Stock markets undergo major adjustments
- ◆ Oil market spooked
- ◆ Exchange rates among the major currencies are likely to drift

Rates of Growth of Real GDP of G7 Countries

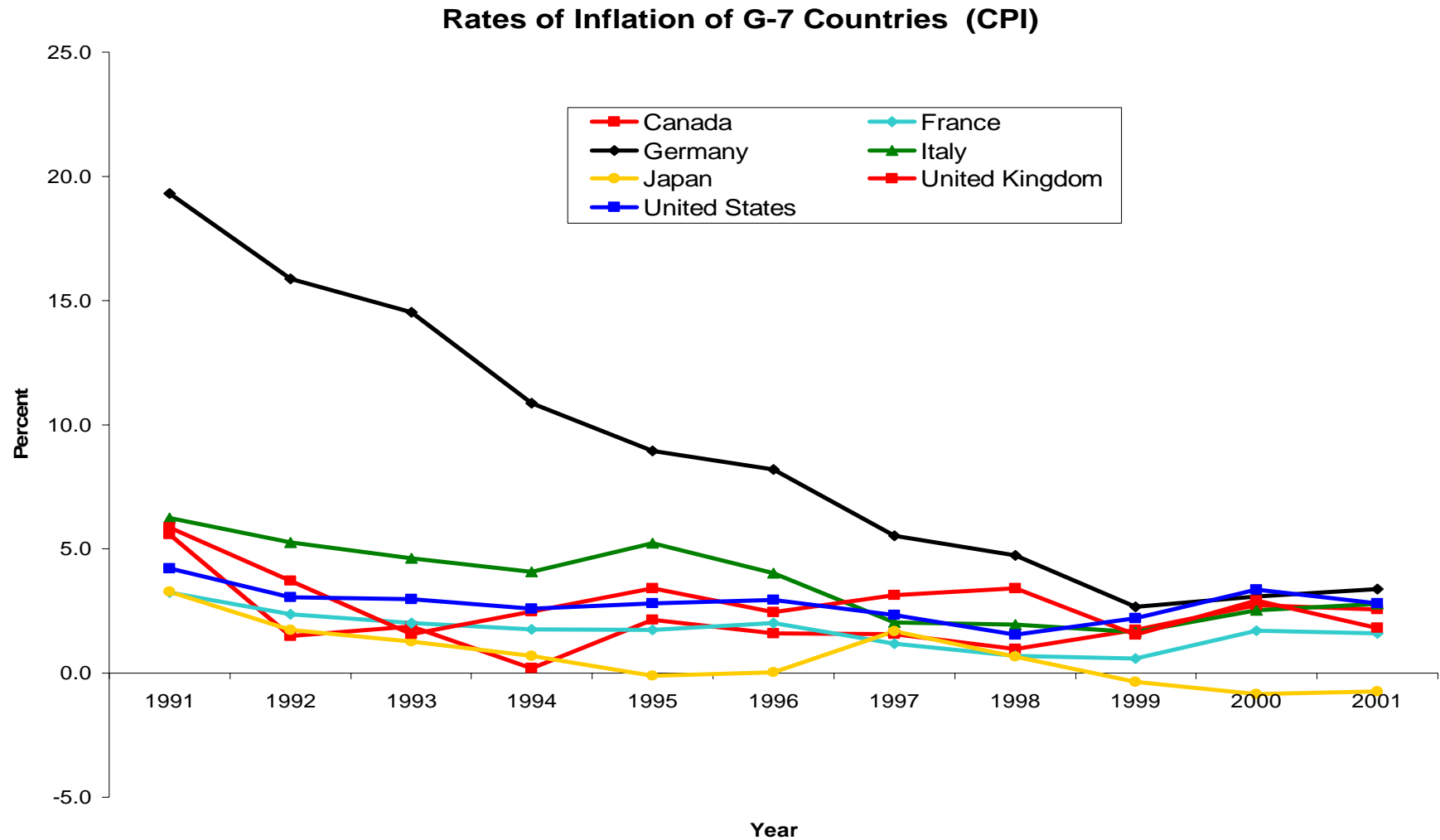


Quarterly Rates of Growth of Real GDP: Selected East Asian Economies

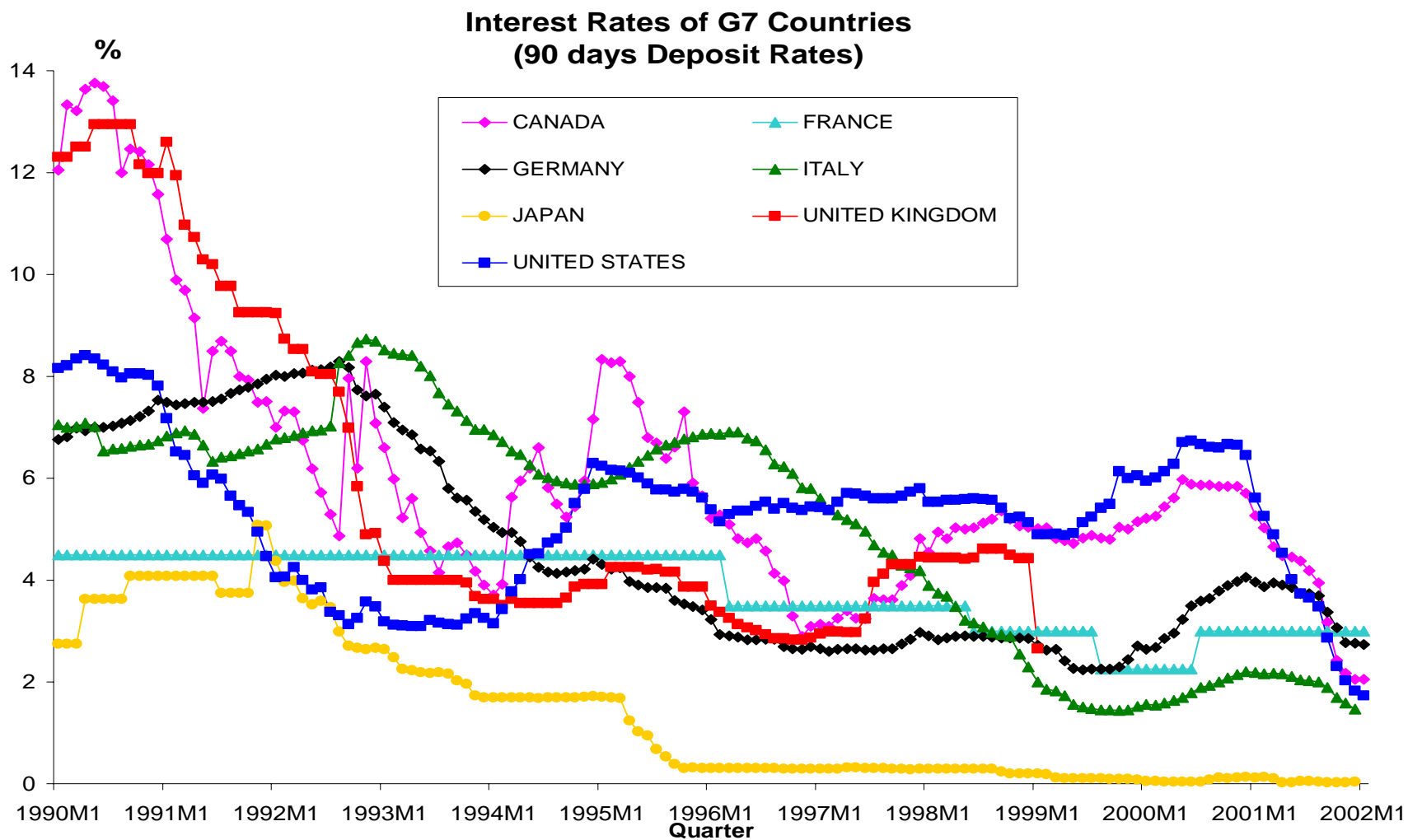
Quarterly Rates of Growth of Real GDP, Year-over-Year, Selected East Asian Economies



Rates of Inflation of G-7 Countries (CPI)

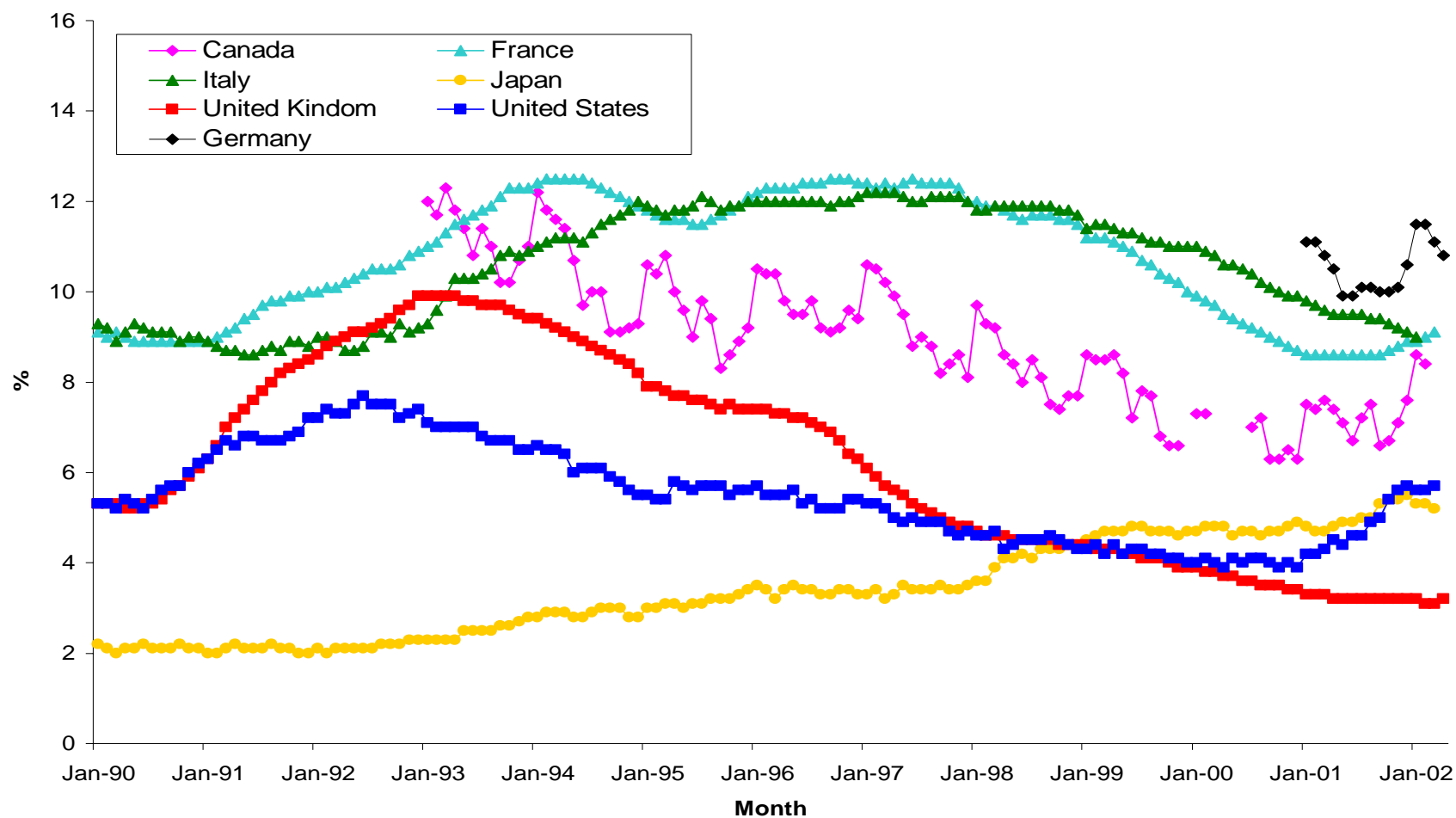


Rates of Interest of G-7 Countries

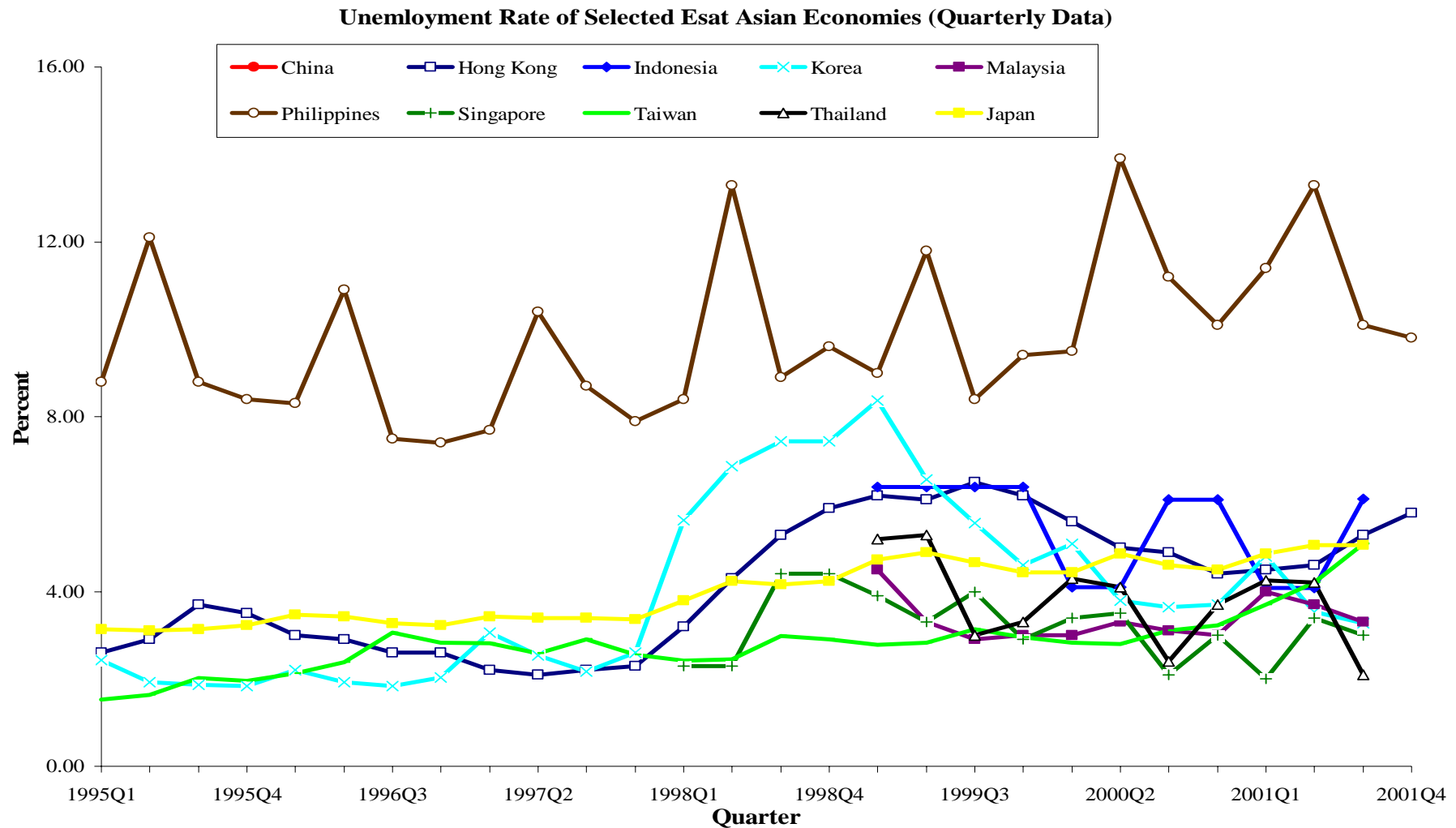


Rates of Unemployment of G-7 Countries

Monthly Unemployment Rates of G7 Countries

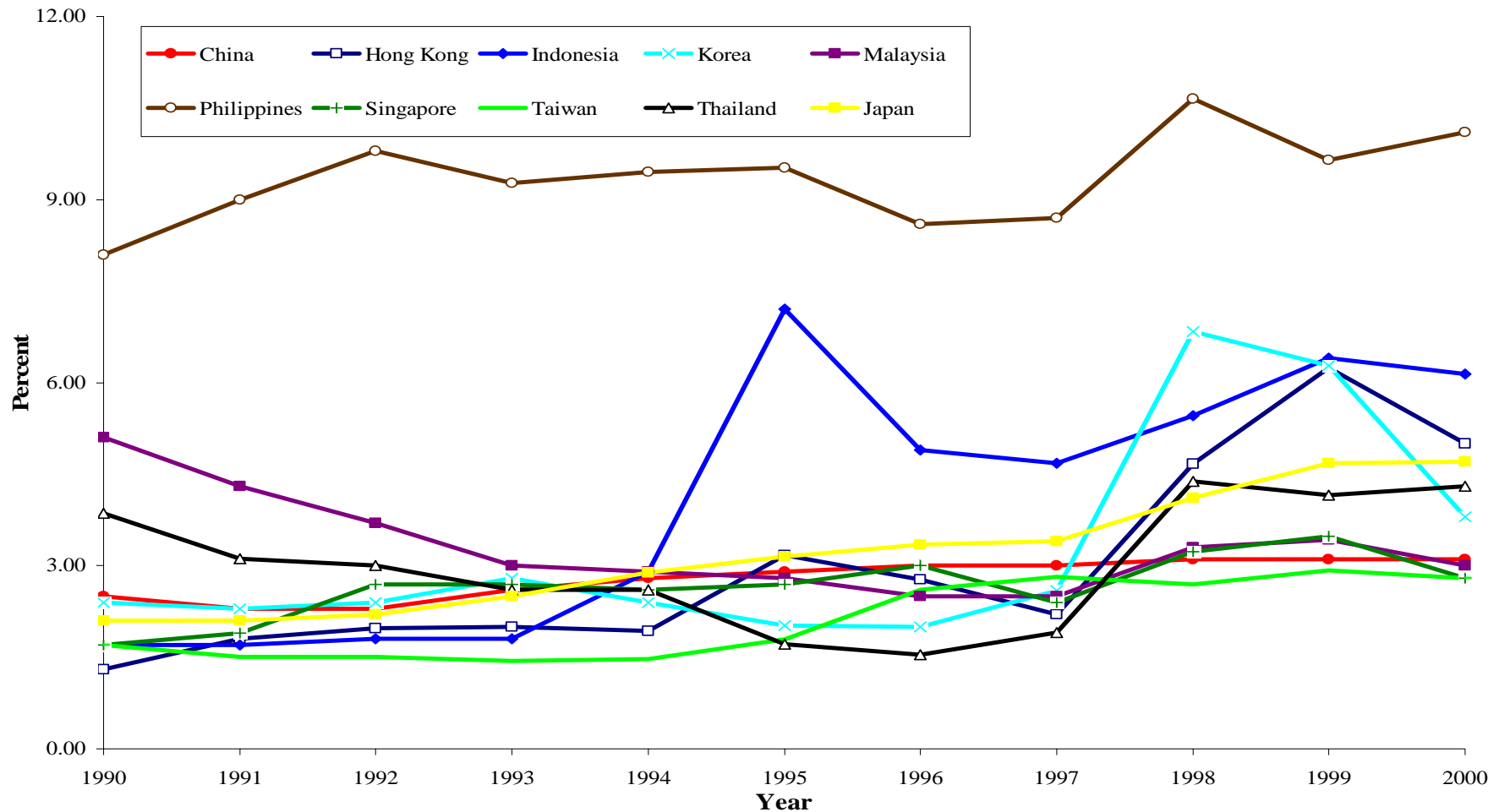


Quarterly Rates of Unemployment: Selected East Asian Economies



Annual Rates of Unemployment: Selected East Asian Economies

Annual Unemployment Rates of Selected East Asian Economies



The Chinese Economy Today (1)

- ◆ East Asia is the fastest-growing region in the world over the past two decades, the East Asian currency crisis of 1997-98 notwithstanding
- ◆ China is the fastest growing country in East Asia—nearly 10% p.a. since beginning of economic reform (1979)
- ◆ Between 1979 and 2001, Chinese real GDP grew from \$177 billion to \$1.16 trillion (2001 prices) and real GDP per capita grew from \$183 to \$920. The U.S. GDP (\$10.19 trillion) and GDP per capita (\$36,840) are respectively 9 and 40 times the comparable Chinese figures in 2001.
- ◆ China survived the East Asian currency crisis relatively unscathed.
- ◆ China is one of the very few socialist countries that have made a successful transition from a centrally planned to a market economy—the 10th Five-Year Plan is only indicative and not mandatory; the rate of interest (the price of money) and the exchange rate are the only prices that are still administratively determined on the margin.

The Chinese Economy Today (2)

	1979	2001
	US\$ (2001 prices)	
Real GDP	177 bill.	1.16 trill.
Real GDP per capita	183	920

The Chinese Economy Today (3)

	U.S.	China
	US\$ (current prices)	
2001 GDP	10.19 trill.	1.16 trill.
2001 GDP per capita	36,840	920

The Chinese Economy Today (4)

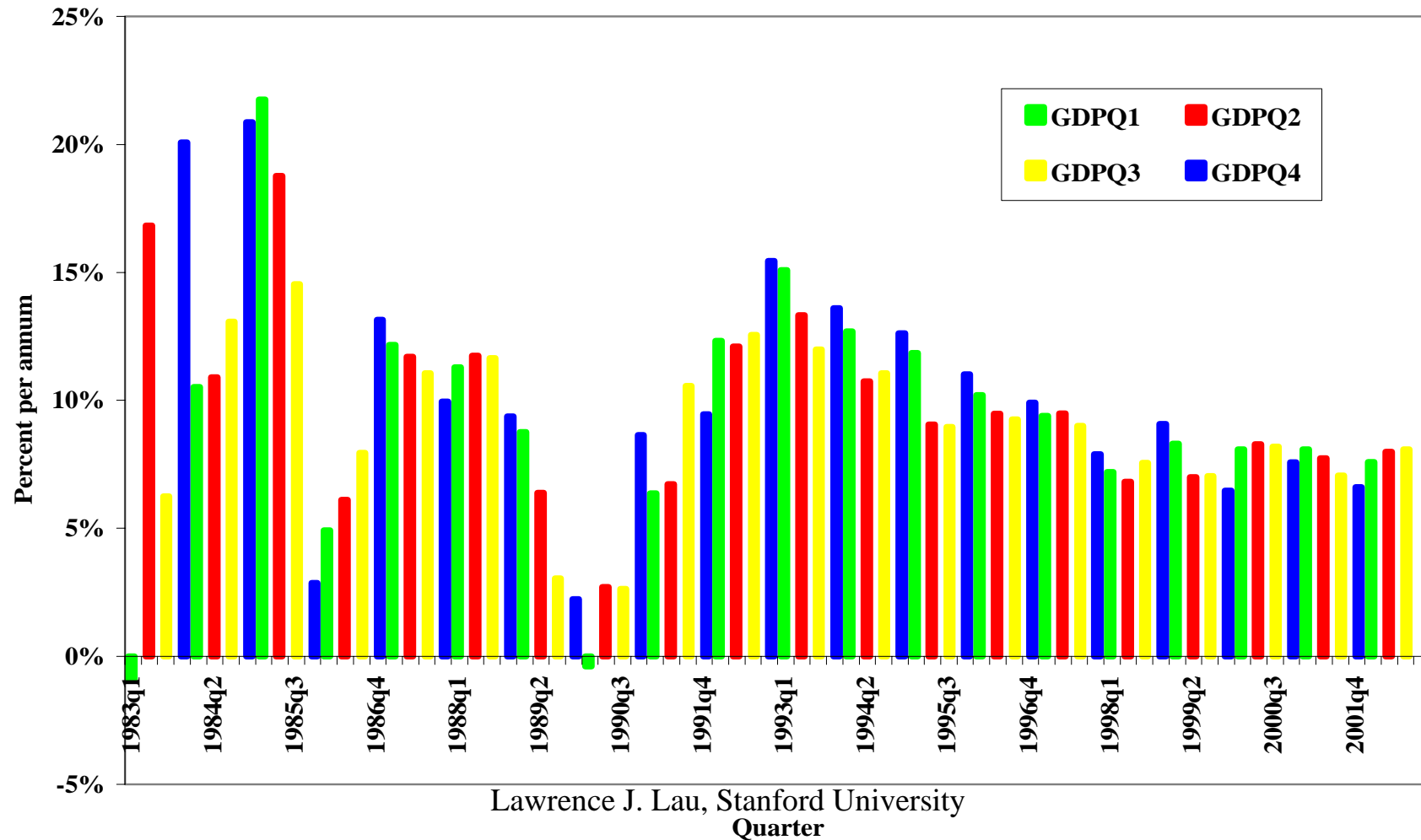
- ◆ The private (non-state) sector accounts for more than 65% of GDP and an even greater percentage of employment in 2001—non-state-owned firms face hard budget constraints and ordinary citizens can make a good living without being beholden to the state.
- ◆ China is the 6th largest trading country in the world (exports of US\$266.2 billion and imports of US\$245 billion, totaling US\$511.2 billion in 2001)
- ◆ China has been rapidly becoming a major destination for the exports of other East Asian economies
- ◆ China is no longer a “shortage” economy--insufficient aggregate demand is a real possibility

Rates of Growth of Real GDP and Inflation (% p.a.)

◆ Actual	Real GDP	RPI	CPI	
1997	8.8	0.8	2.8	
1998	7.8	-2.6	-0.8	
1999	7.1	-2.9	-1.3	
2000	8.0	-1.5	0.4	
2001	7.3	-0.8	0.7	
2002Q1	7.6		-0.6	
2002Q2	8.0			
2002Q3	8.1			
2002/Q1-3	7.9			
◆ Projections				
2002	>7.0			(NBS)
	7.8		-0.5	(PBOC)
	7.0			(ADB)
	7.5		1.0	(Lau)
	6.9			(Lehman)

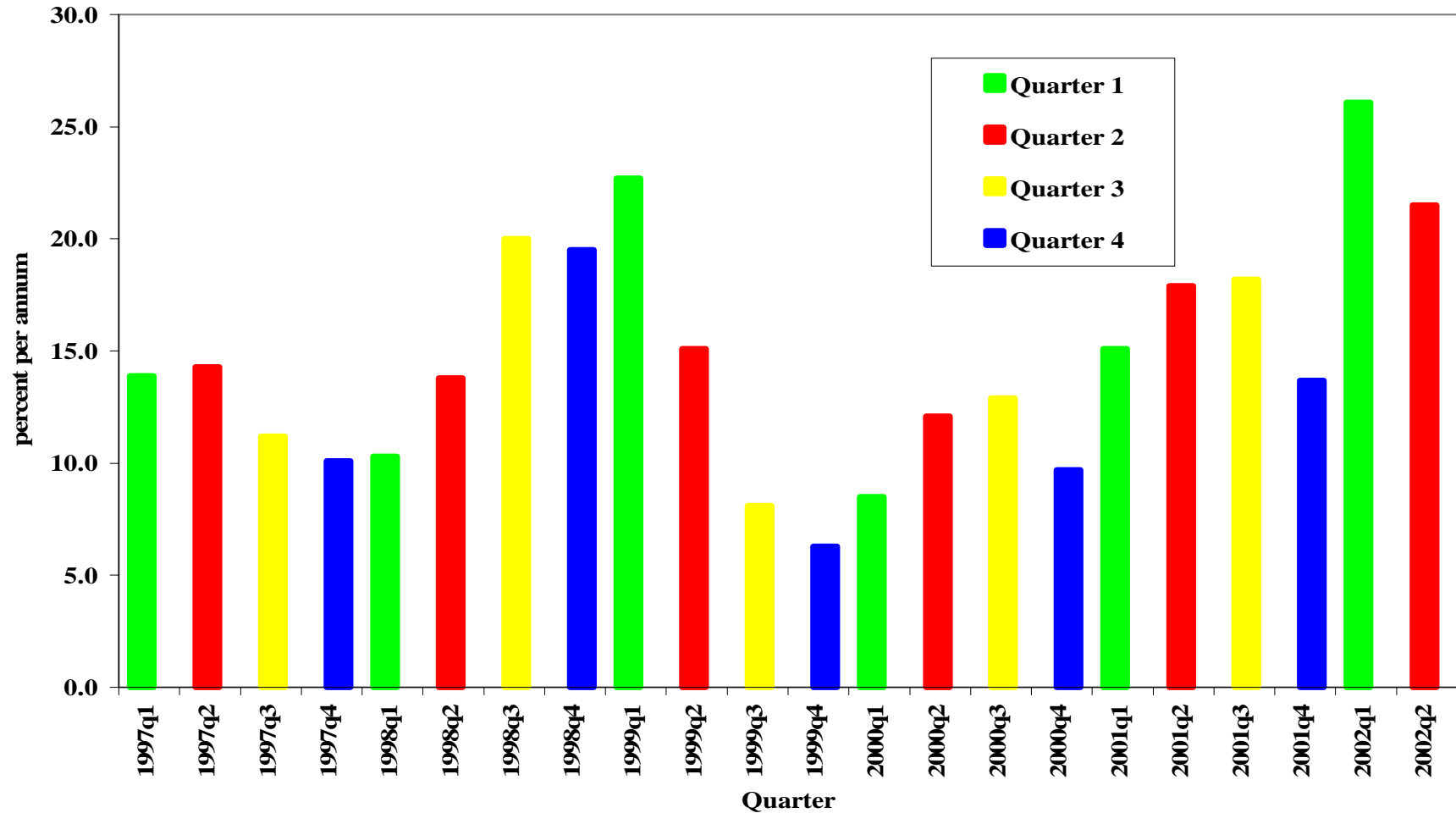
Quarterly Rates of Growth of the Real GDP of the Chinese Economy, Y-o-Y

YoY Quarterly Rates of Growth of Real GDP



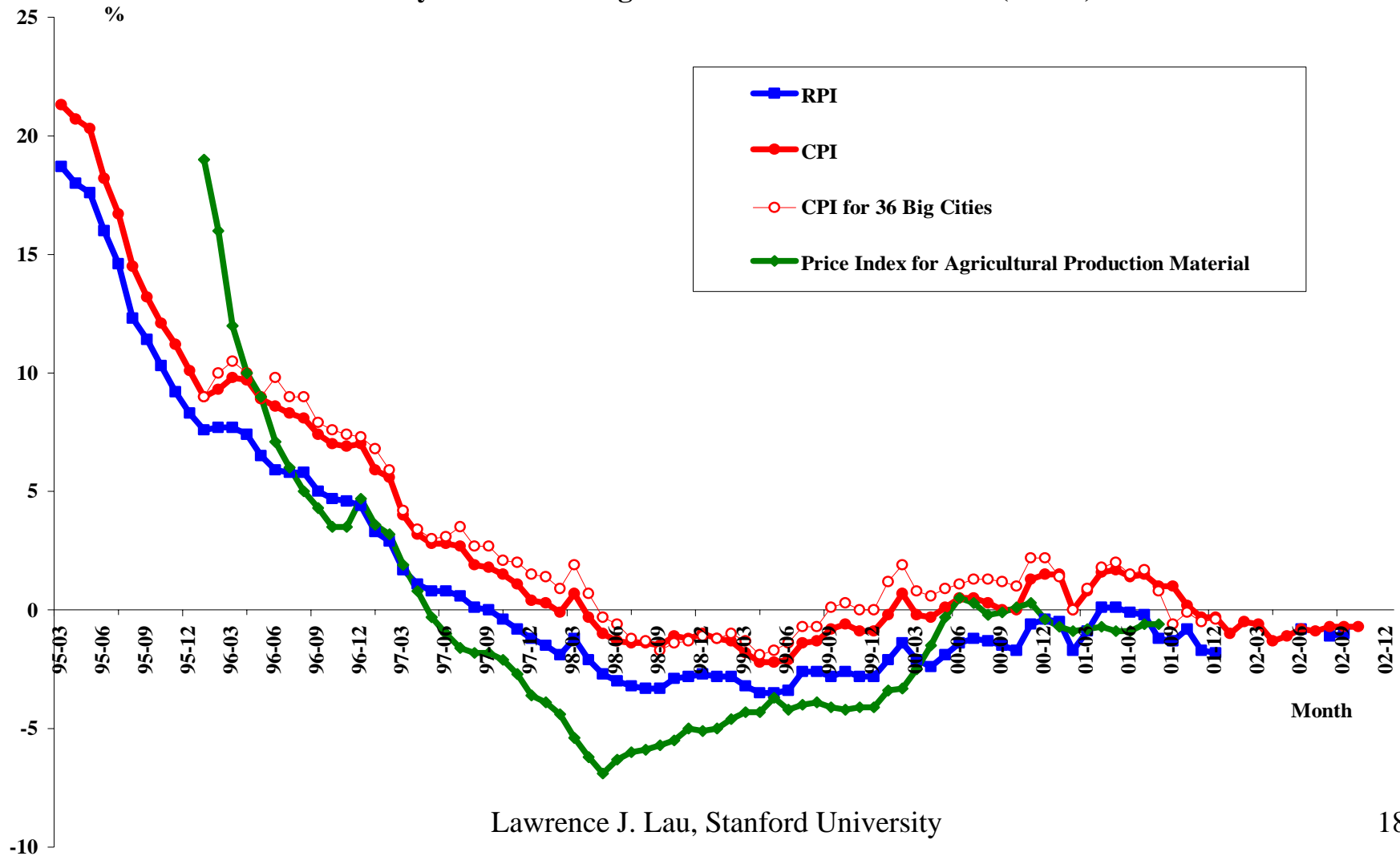
Quarterly Rates of Growth of the Real Gross Fixed Investment of the Chinese Economy, Y-o-Y

YoY Quarterly Rates of Growth of Real Gross Domestic Fixed Investment



The Consumer and Retail Price Indices

Monthly Rates of Change of Price Indices Since 1995 (Y-o-Y)



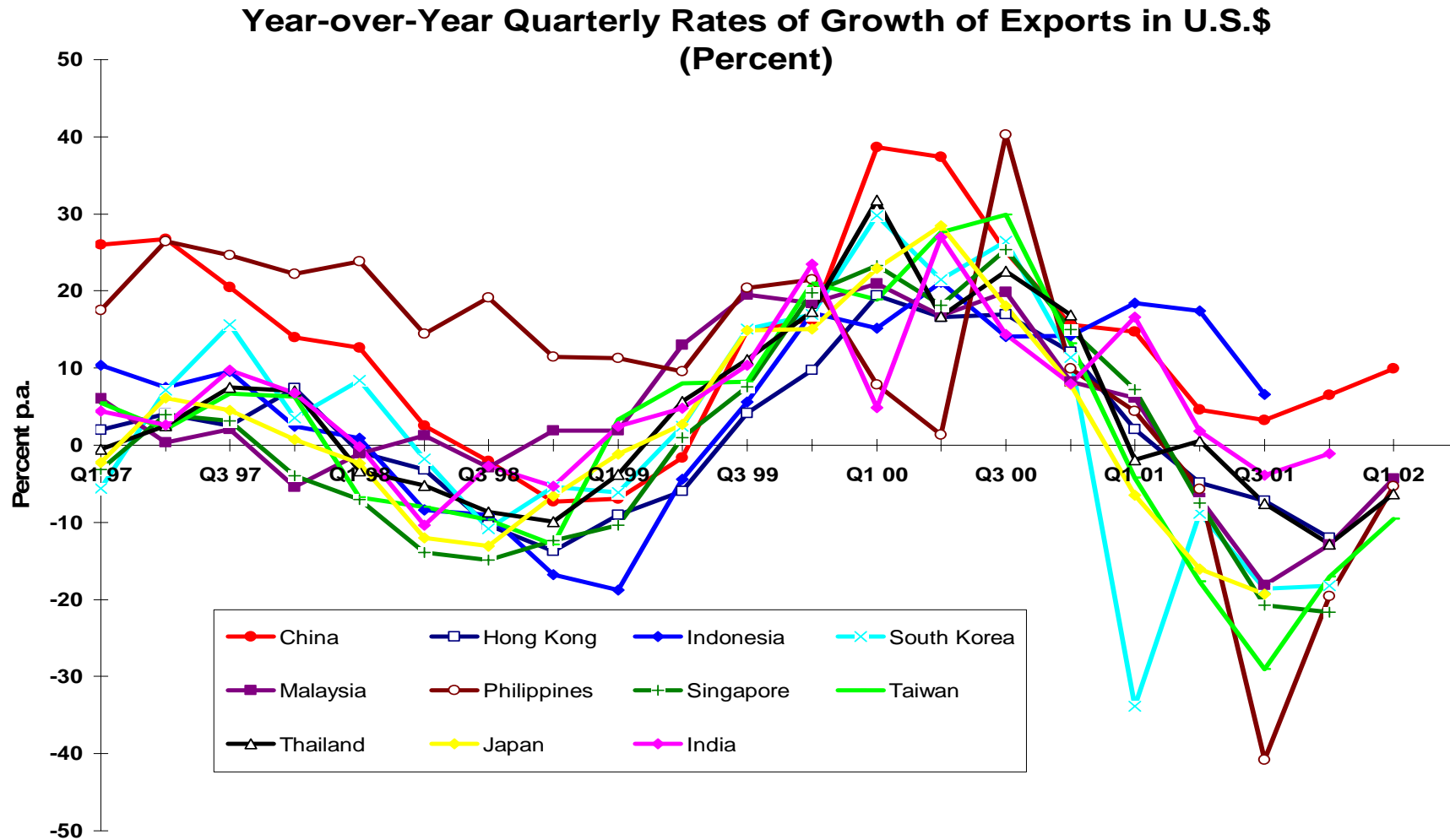
Has “Deflation” Stopped?

- ◆ Deflation has slowed:
 - ◆ In 1999 the RPI declined 2.9%; in 2000 the RPI declined only 1.5%
 - ◆ In 1999 the CPI declined 1.3%; in 2000 the CPI rose 0.4%
 - ◆ In 2001, the CPI rose 0.7%, the RPI declined 0.8% and the PPI declined 3.7%
 - ◆ In 2002/Q1, the CPI declined 0.6%; in both 2002/M9 and M10, the CPI declined 0.7% YoY .
 - ◆ In April 2002, the PPI declined 3.1% Y-o-Y; in January-April, 2002, the PPI declined 3.8% Y-o-Y
- ◆ The “core” rate of inflation is non-negative
 - ◆ The decline in prices over the past few years was due in part to the fall in the prices of energy, in particular oil, and agricultural products, in particular food.
 - ◆ It was also due in part to the increase in productivity (reduction in cost) and in competition, the decrease in the degree of monopolistic market power (reduction in profit margin), and more recently by the decrease in prices induced by import tariff reductions mandated by the accession agreement to the WTO.
 - ◆ The long-term core inflation rate--inflation rate net of changes in the prices of energy and food--may be estimated at between 0 and 1 percent--there is no deflation
 - ◆ The key to determining whether there is deflation in the macroeconomic sense is whether the components of aggregate demand, real consumption and investment, are growing (In 2002/M9, retail sales increased 0.1% YoY).

The Relative Stability of the Rate of Growth of Real GDP

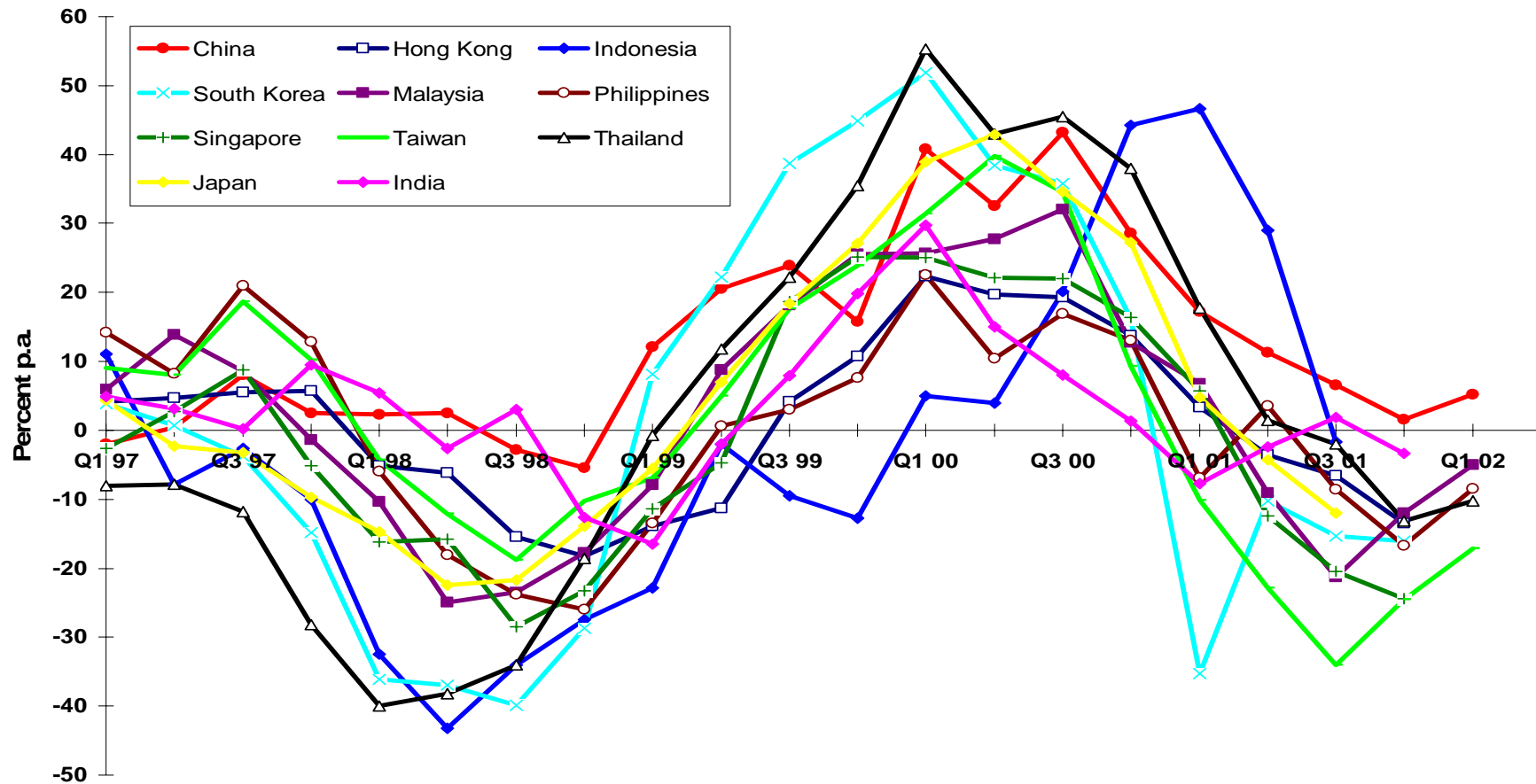
- ◆ Gross domestic investment is mostly financed through domestic savings rather than foreign investment or loans.
- ◆ Foreign direct investment (FDI) accounts for approximately 10% of gross domestic investment in China, a relatively small proportion.
- ◆ Despite fluctuations in exports and imports, the rate of growth of real GDP has remained remarkably stable at 7-8%. Exports are approximately 20% of GDP, but the value-added component is only approximately 30%, resulting in an export-generated value-added to GDP ratio of 6%. Chinese exports to the U.S. is approximately 7.3% of Chinese GDP (according to adjusted U.S. data), with a value-added content of 20%, resulting in a value-added to GDP ratio of 1.5%.
- ◆ The volatility of the Chinese annual rates of growth has also declined, indicating an improved capacity for macroeconomic management.
- ◆ The Development Research Center of the State Council has estimated that accession to WTO will increase the rate of growth of the Chinese economy by 0.5% per annum; the U.S. International Trade Commission has estimated that real GDP would be 4% higher in 2010 than otherwise.
- ◆ The National Bureau of Statistics (NBS) projected that the award of the 2008 Summer Olympic Games to Beijing should add 0.3-0.4% to the average annual growth rate

Quarterly Rates of Growth of Exports: Selected East Asian Economies



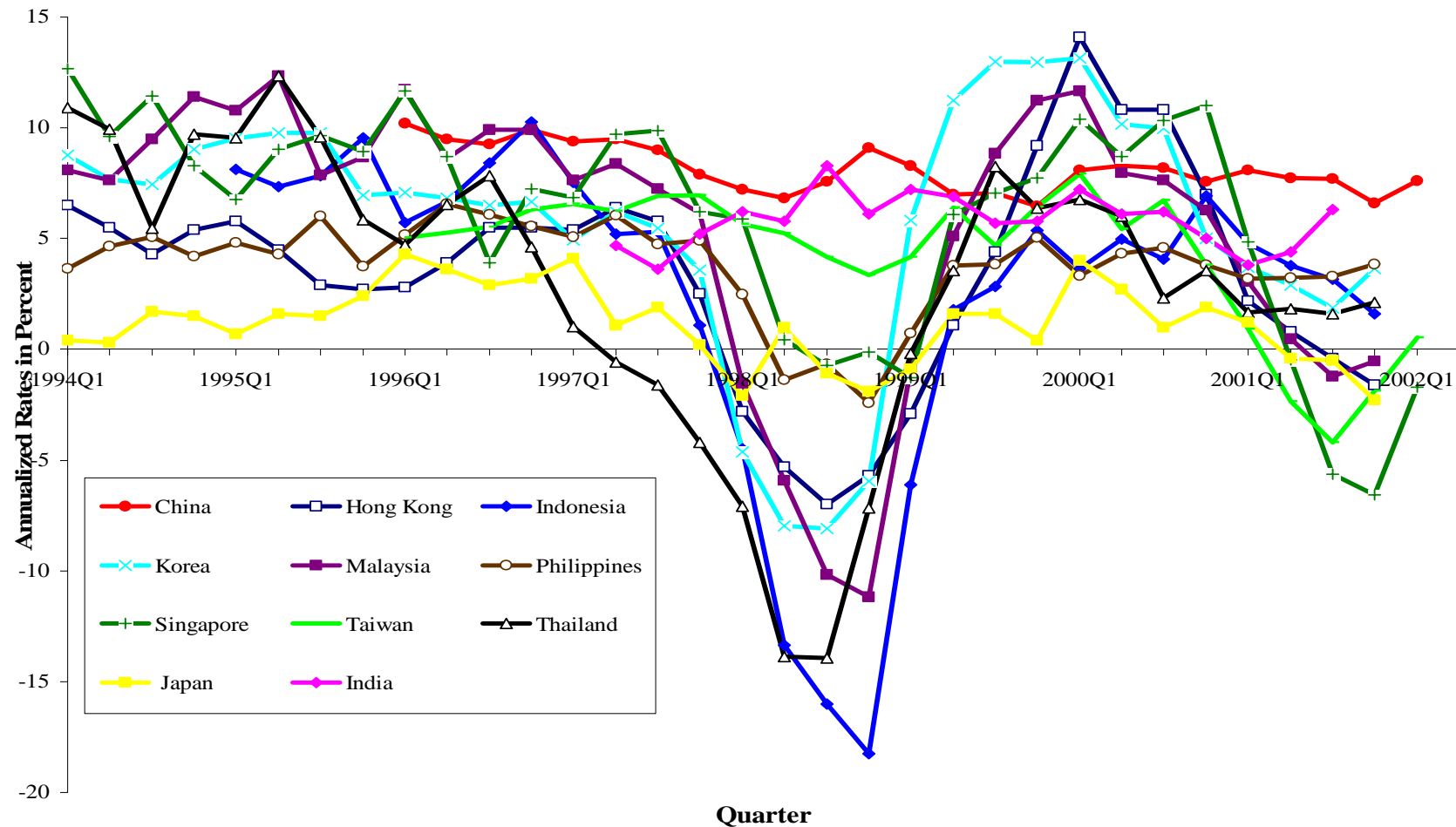
Quarterly Rates of Growth of Imports : Selected East Asian Economies

Year-over-Year Quarterly Rates of Growth of Imports in U.S.\$
(Percent)

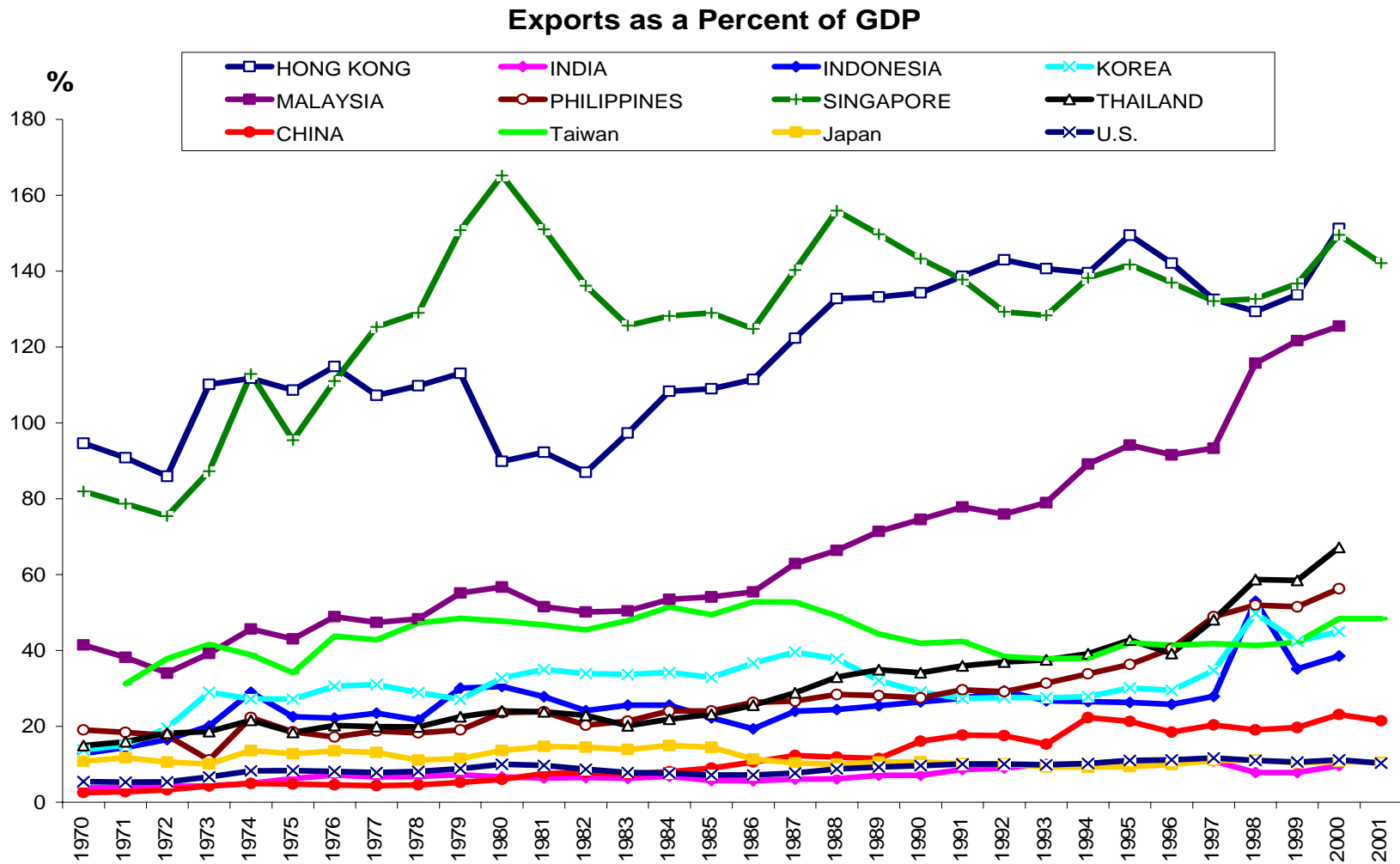


Quarterly Rates of Growth of Real GDP: Selected East Asian Economies

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

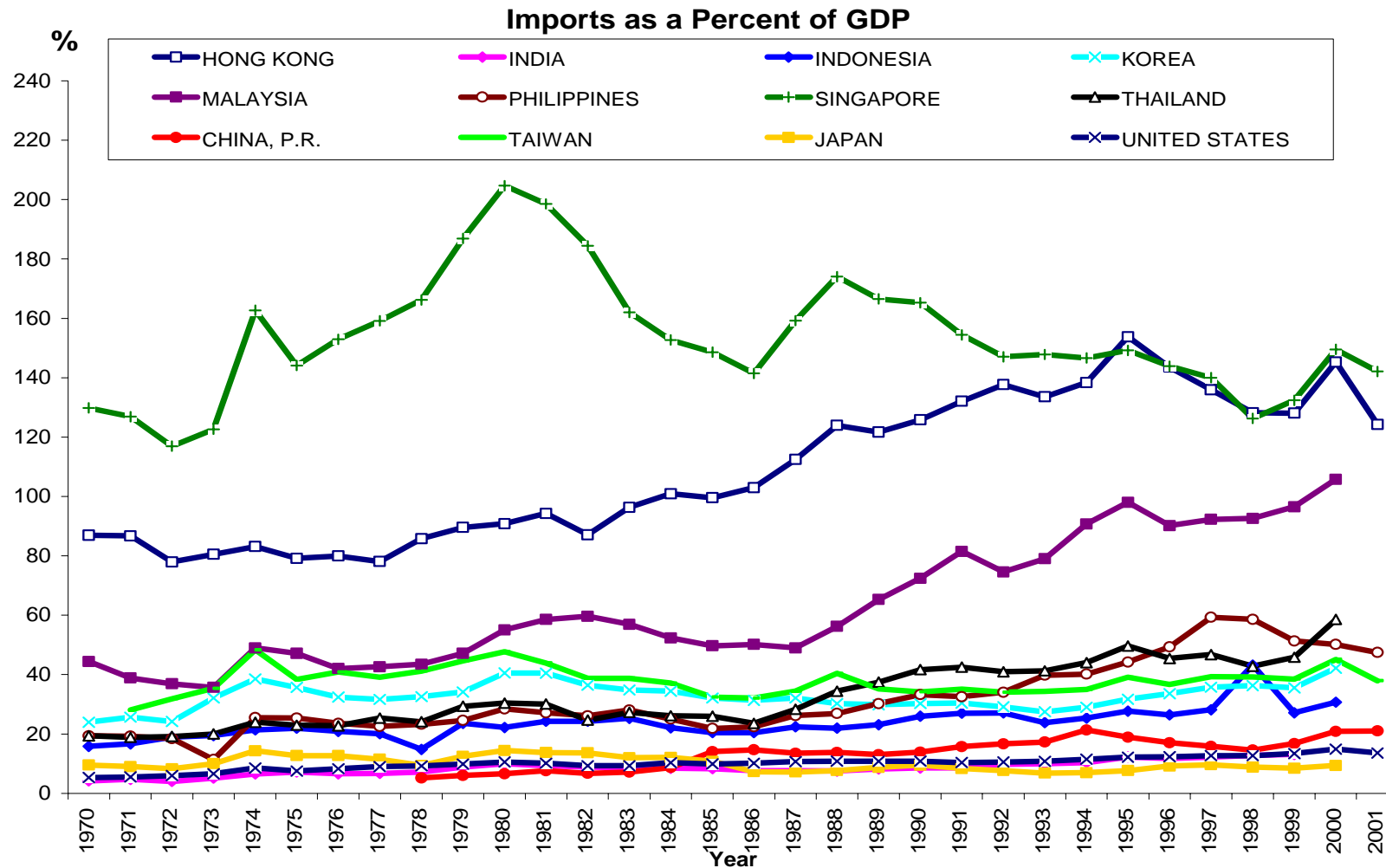


Exports as a Percent of GDP: Selected East Asian Economies and U.S.



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Imports as a Percent of GDP: Selected East Asian Economies and U.S.



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Exports, Imports and Foreign Exchange Reserves

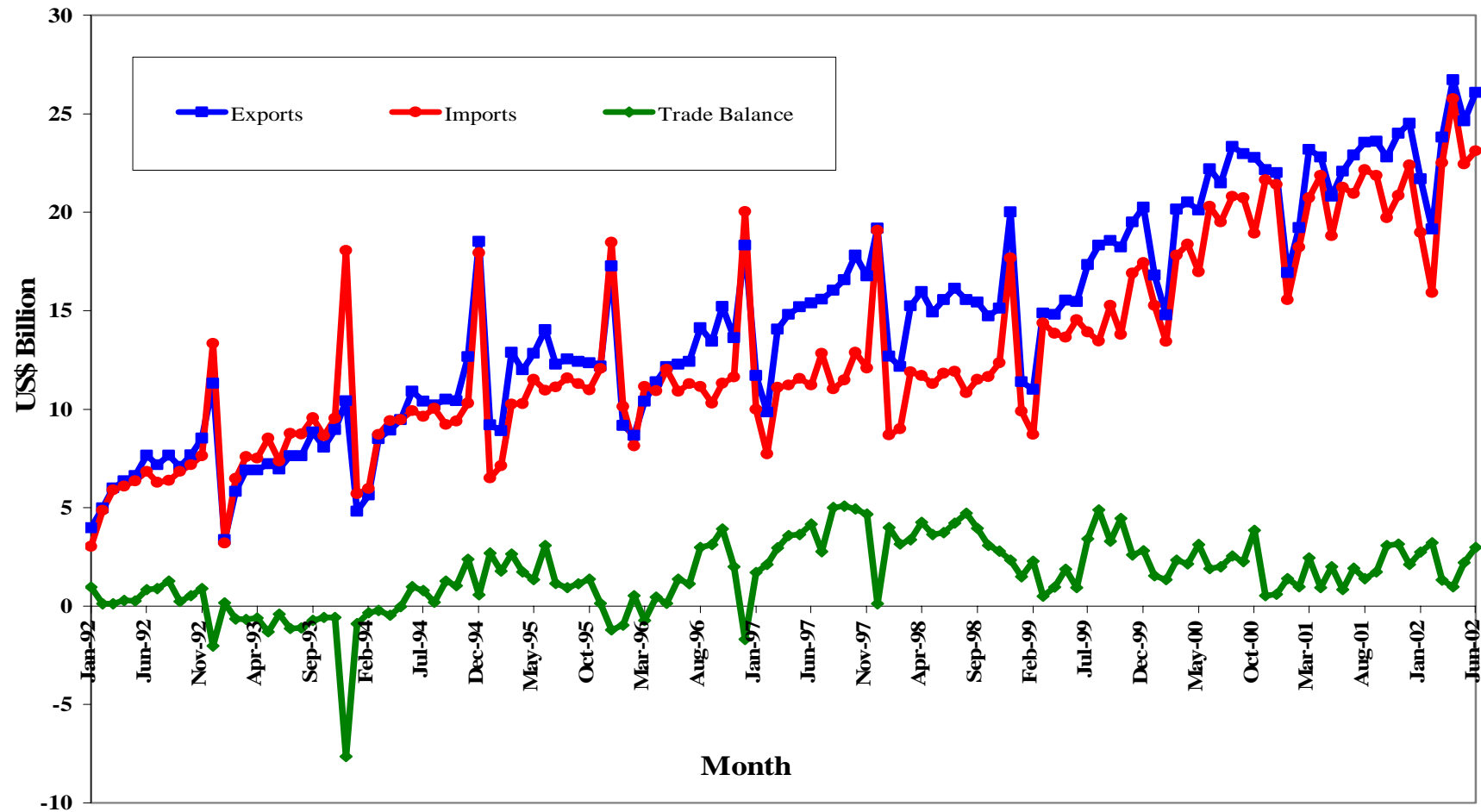
- ◆ In 2000, exports rose 27.8% to US\$249.2 billion; imports rose 35.8% to US\$225.1 billion; with a trade surplus of US\$24.1 billion
- ◆ In 2001, exports rose 6.8% Y-o-Y to US\$266.2 billion and imports rose 8.2% to US\$243.6 billion with a trade surplus of US\$22.5 billion
- ◆ In 2002, after an initial slowdown, exports and imports have resumed their rapid growth—in Q1-Q3, exports grew 19.4% to US\$232.6 billion while imports grew 17.2% to \$212.6 billion; in 2002/M9, exports grew 33.1% YoY to US\$31.9 billion and imports grew 36.4% to US\$29.8 billion, with a total international trade of US\$61.7 billion, a historic monthly high.
- ◆ Trade with East Asian countries, both exports and imports, have been increasing at double-digit rates—in 2002/M1-8, exports from South Korea, Malaysia, Singapore to China increased YoY 42%, 38% and 31% respectively; in 2002/M9, exports from Japan and Taiwan to Mainland China increased 40% and 171% YoY respectively..

Exports, Imports and Foreign Exchange Reserves

- ◆ Chinese tourists traveling abroad exceeded 10 million in 2000; the tourism component of the balance of payments turned negative in 2000
- ◆ Official foreign reserves continued to rise, reaching US\$212.2 billion at year end 2001, an increase of US\$46.6 billion over year end 2000 (larger than the trade surplus of US\$22.5 billion), and surpassing total outstanding external loans (US\$169.1 billion as of 6/30/2001) by a wide margin; it stood at US\$260 billion as of the end of 2002/M9
- ◆ The exchange rate of the Renminbi vis-à-vis the U.S. Dollar has remained stable since 1994 (in fact, there has been a slight appreciation from 8.7 Yuan/US\$ to 8.3 Yuan/US\$) and is expected to remain so

Monthly Exports, Imports and Trade Balance Official Chinese Data

Monthly Exports, Imports, and Trade Balance

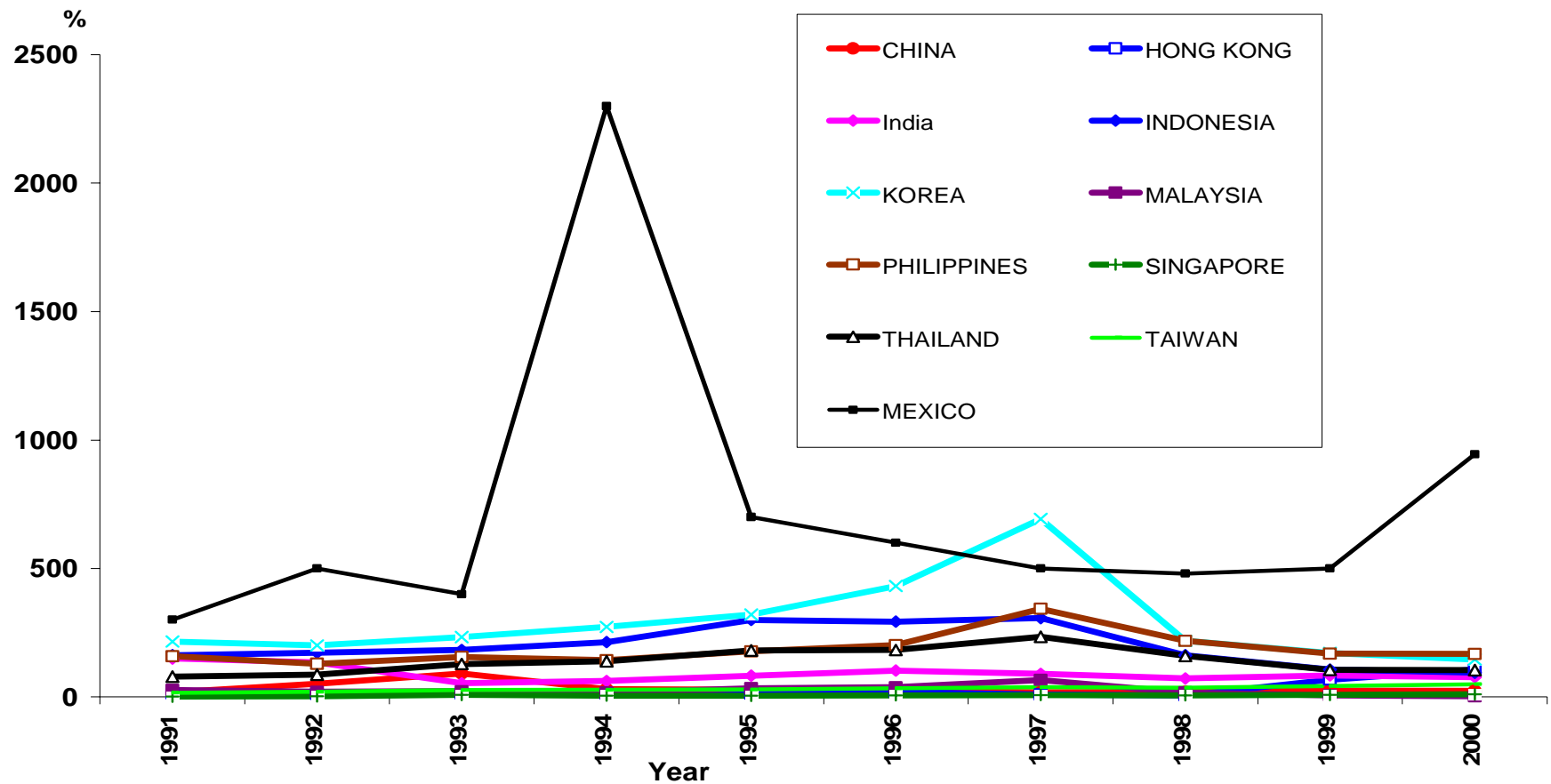


Foreign Direct Investment (FDI)

- ◆ FDI, at US\$45 billion a year, amounts to approximately 10% of the annual Chinese aggregate gross domestic investment of approximately US\$450 billion. Moreover, a significant proportion of it is what is known as “recycled” or “round-tripped” investment ultimately originated by Chinese entities and individuals. Quantitatively, FDI is not critical to the Chinese economy.
- ◆ Qualitatively, FDI is probably more important because it brings in technology, know-how, business methods, management techniques and markets that will otherwise be unavailable in China.
- ◆ In 2001, China is the fourth largest recipient country of FDI, behind the United States, the United Kingdom and Sweden, accounting for approximately 5% of worldwide FDI.
- ◆ China’s share of total World FDI is still relatively low—in 2002, FDI is expected to be approximately US\$50 billion compared to a world total of US\$534 billion, less than 10% (the U.S. is the largest recipient of FDI in the world, amounting to US\$124 billion in 2001; however, it is expected to fall to US\$44 billion in 2002).
- ◆ FDI has been responsible for most of the growth of exports (and imports). However, the nature of FDI has also changed--from export-oriented to domestic-market oriented; from light industry to heavy and high-technology industries; and from small projects to large projects.

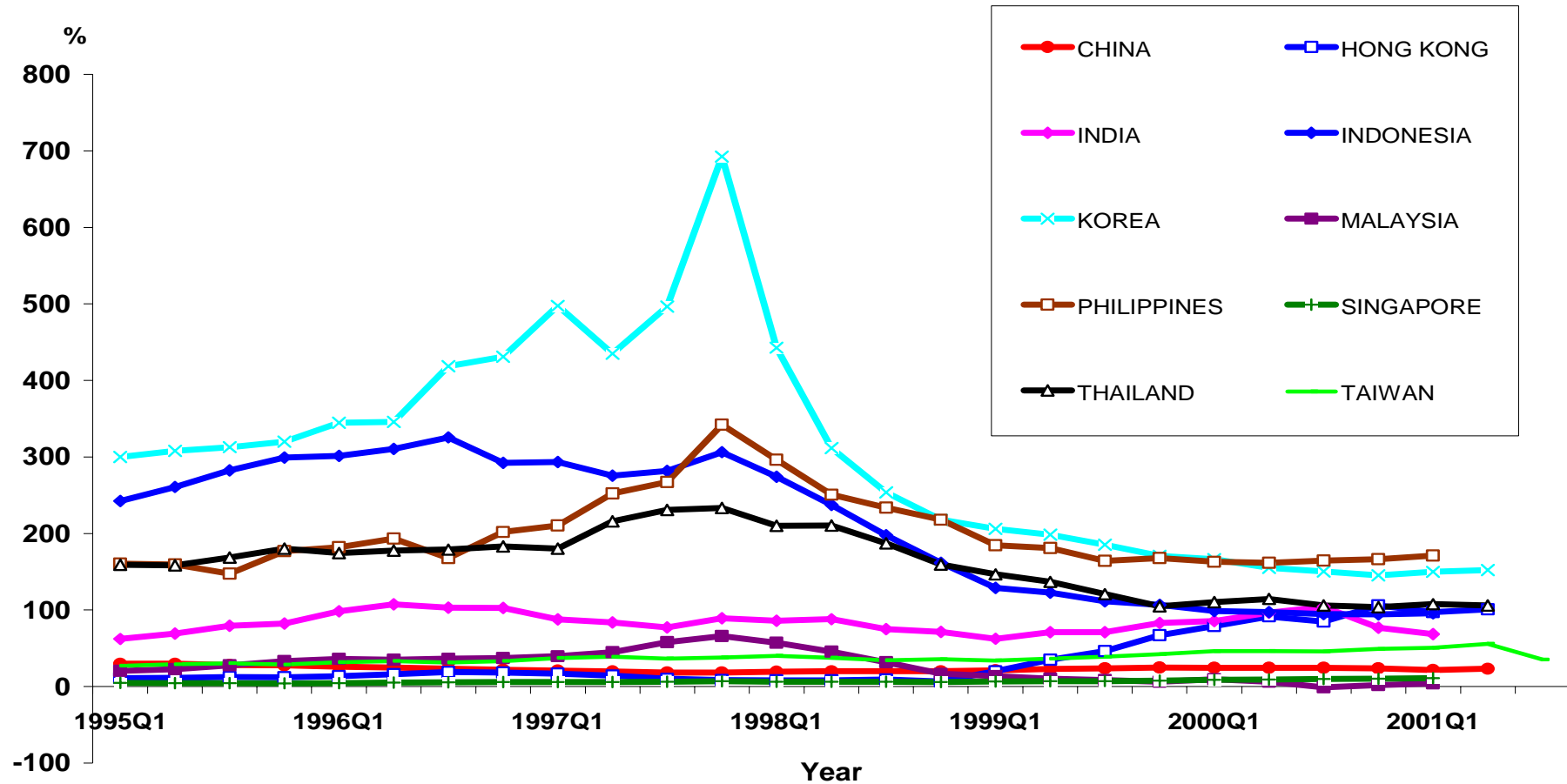
Ratio of Liquefiable Foreign Exchange Liabilities, Including Current Account Balance, to Reserves

Ratio of Short-Term Foreign Currency Liabilities, Including Current Account Balance, to Foreign Exchange Reserves



Ratio of Liquefiable Foreign Exchange Liabilities, Including Current Account Balance, to Reserves

Ratio of Short-Term Foreign Currency Liabilities, Including Current Account Balance, to Foreign Exchange Reserves



Long-Term Global Economic Trends

- ◆ Low rates of inflation and hence low rates of interest
- ◆ Rapid economic transformation and adjustment—brought about by the information and communication technology revolution, i.e., the "New" Economy
- ◆ Globalization and the growth of world trade—brought about by the decline in communication and transportation costs
- ◆ De-verticalization or fragmentation and out-sourcing—also brought about by the information and communication technology revolution
- ◆ The increasing importance of intangible capital (human capital and R&D capital)—complementarity with tangible capital
- ◆ Demographic transition—declining fertility rates and aging
- ◆ Long-term sustainability—environmental concerns—energy, water, climate change
- ◆ The potential of the biotechnology revolution

The Information and Communication Technology Revolution

- ◆ The Information and Communication Technology (ICT) revolution and its rapid international diffusion
- ◆ The huge decline in the costs of computation and information storage coupled with the huge increase in the speed of computation
- ◆ The huge decline in the cost of communication coupled with the huge increase in speed and throughput volume
- ◆ Example: The semiconductor manufacturing technology has been improving exponentially in terms of number of components on a chip whereas the cost per component has also been declining exponentially (Moore's Law)
- ◆ Example: The price of a computer, holding the size of memory and speed constant, has been declining at 14% p.a. since the 1960s
- ◆ Example: There is significant broad-band over-capacity

Internet Users in the Asia/Pacific Region

Internet Users in the Asia/Pacific Region (millions)								
	1999	2000	2001	2002	2003	2004	2005	Annual Rate of Growth
China	16.5	27.2	40.4	59.4	84.5	111.6	141.3	43.0
Hong Kong	1.9	2.5	3.0	3.2	3.8	4.6	5.4	19.0
India	3.2	6.2	11.0	18.9	30.3	42.3	62.5	64.1
Indonesia	1.0	1.4	1.9	2.5	3.6	5.2	7.3	39.3
South Korea	5.3	8.1	10.7	14.1	17.7	22.1	26.8	31.0
Malaysia	1.2	1.7	2.4	3.5	4.7	6.2	8.1	37.5
Philippines	0.6	1.1	1.6	2.7	4.1	6.3	8.6	55.9
Singapore	0.8	1.0	1.3	1.5	1.7	1.9	2.4	20.1
Taiwan	4.4	5.5	6.9	8.6	10.8	12.4	15.8	23.7
Thailand	1.0	1.5	2.3	3.5	4.6	6.5	8.7	43.4
Asia/Pacific Region	66.2	94.5	128.0	173.3	231.5	295.7	374.4	33.5

Note: 1999 figures estimated and 2000-2005 figures projected by the Yankee Group.

Penetration Rates in the Asia/Pacific Region

Penetration Rates in the Asia/Pacific Region (percent)							
	1999	2000	2001	2002	2003	2004	2005
China	1.3	2.0	2.9	4.2	5.8	7.4	9.2
Hong Kong	26.9	35.6	40.6	42.5	49.6	57.7	65.3
India	0.3	0.6	1.0	1.7	2.7	3.6	5.2
Indonesia	0.5	0.6	0.9	1.1	1.5	2.1	2.9
South Korea	11.2	17.0	22.3	29.3	36.2	44.8	53.9
Malaysia	5.3	7.4	10.0	13.9	18.1	23.3	29.8
Philippines	0.8	1.4	2.1	3.3	4.8	7.2	9.5
Singapore	24.2	29.0	37.7	42.5	47.9	54.0	66.1
Taiwan	19.9	24.7	30.5	37.8	46.8	53.3	67.4
Thailand	1.6	2.4	3.5	5.1	6.6	9.1	11.7
Asia/Pacific Region	2.4	3.3	4.5	6.0	7.8	9.6	11.9

Note: 1999 figures estimated and 2000-2005 figures projected by the Yankee Group.

Opportunities and Challenges of the New Economy

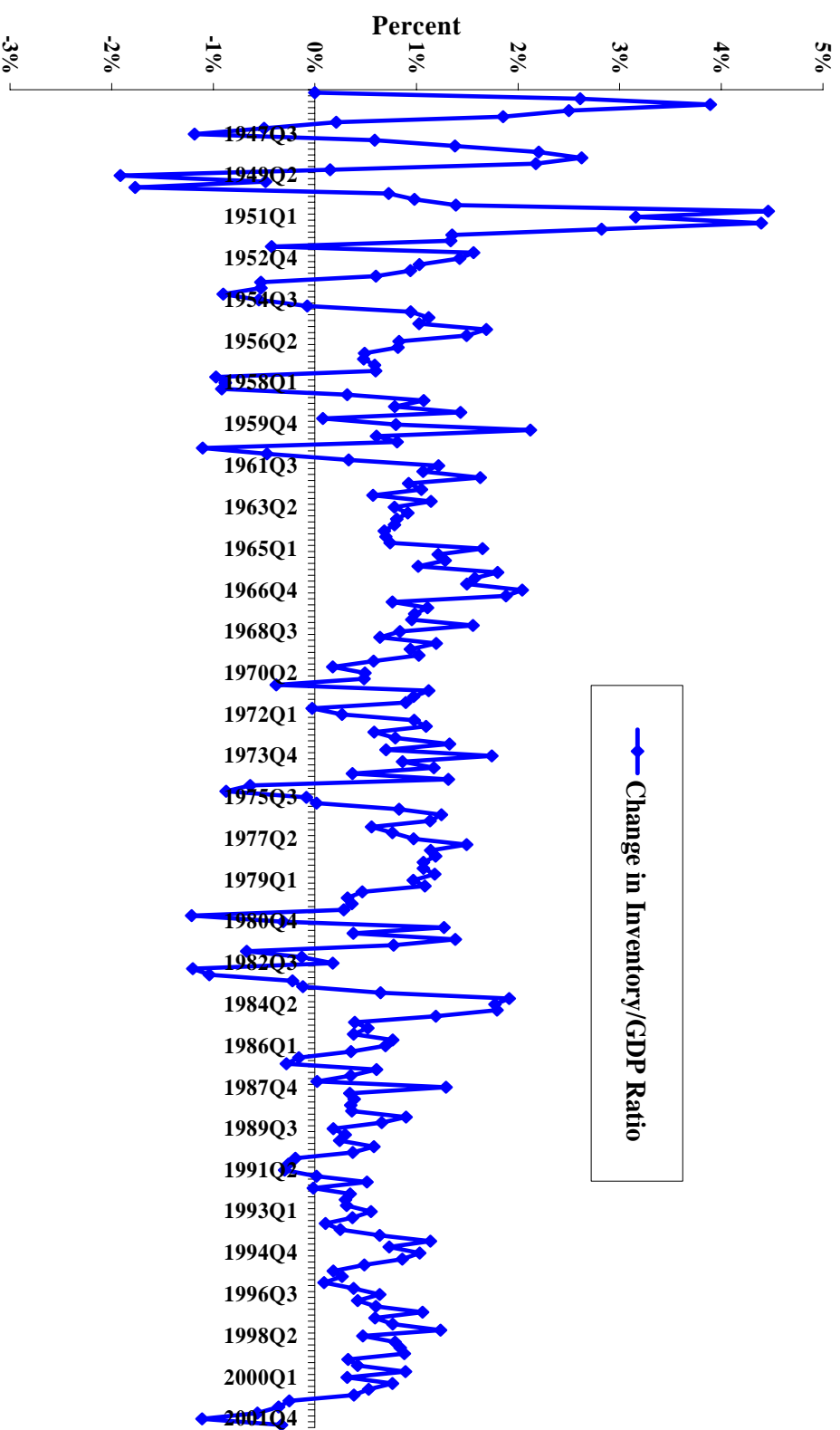
- ◆ The “New Economy” depends on both tangible and intangible capital--the importance of complementarity of different forms of capital (tangible, infrastructural, human, R&D, knowledge)
- ◆ Investment in intangible capital is needed to exploit this potential
 - ◆ Human capital; firm-specificity versus worker-specificity (flexibility, adaptability and re-employability)
 - ◆ R&D capital--learning and diffusion
 - ◆ Innovation rents accrue to the inventors and patent and copyright holders

Rapid Economic Transformation and Adjustment— Manifestation in the United States

- ◆ The “New Economy” brings about a one-time permanent increase in potential output, hence, productivity.
- ◆ An increase in the rate of measured technical progress, or growth of total factor productivity—that is, the ability of producing output from a given quantity of inputs—over the decade of the 1990s, arose not so much from the rate of innovation given the rate of R&D investments but from the increased rates of diffusion and adoption. However, this acceleration in the rate of measured technical progress is likely to be transient.
- ◆ A decline in the average level of changes in inventory (stocks) relative to GDP as well as in its volatility. Changes in inventory used to be a major source of business cycle fluctuations in the United States. The improvement may be attributed in part to better inventory management due to more, more timely, better and cheaper information available, resulting in faster responses to changes in demand conditions.
- ◆ The volatility of new housing starts, which used to be a major source of business cycle fluctuations in the United States, has also been significantly reduced in recent years, reflecting better information and faster adjustments, and institutional changes such as the introduction of adjustable-rate mortgages and securitization of mortgages and the resulting sharing of the interest rate risks by the mortgage lenders to other investors. New housing starts are no longer as sensitive to changes in the rates of interest.

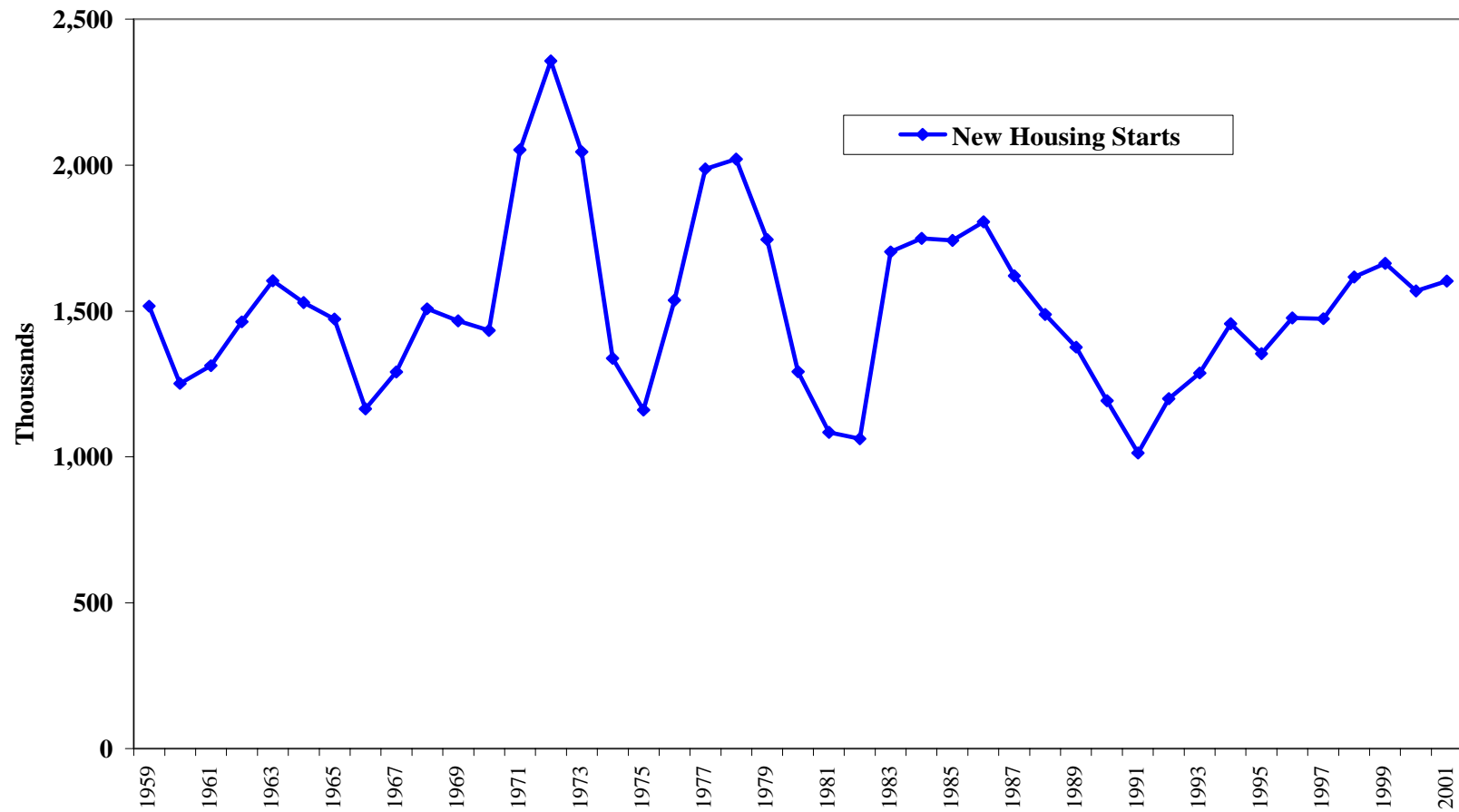
The Change in Inventory/GDP Ratio in the United States--Quarterly Data

Change in Inventory/GDP Ratio



New Housing Starts in the United States

New Housing Starts (thousand units)



The Effects of the “New” Economy in the United States

	Average Rate of Growth of TFP	Average Inventory Change-GDP Ratio	Average Absolute Inventory Change-GDP Ratio	Average Unemployment Rate	Average Rate of Growth of GDP Deflator
1951-60		0.69%	1.09%	4.55%	
1961-70	1.05%	0.95%	1.00%	4.72%	2.83%
1971-80	0.82%	0.68%	0.84%	6.44%	7.00%
1981-90	0.76%	0.43%	0.63%	7.12%	3.97%
1991-2001	0.77%	0.40%	0.53%	5.53%	2.29%

The Causes of Rising Globalization

- ◆ Falling barriers (legal, technical, and institutional) to movements of goods, services and factors (particularly capital, but also human capital)
- ◆ Falling costs of (international) communication and transportation
 - ◆ The rise of English as a global medium of communication
- ◆ Falling transactions costs in terms of both money and time (coordination and monitoring) and expanding span of control, brought about by the information technology and communication (ITC) revolution
- ◆ Rising capacity for deverticalization or fragmentation (global subdivision of the supply chain)
- ◆ Increases in the degrees of returns to scale as a result of the ITC revolution
- ◆ The entry of new players on the global market (China, Russia and India)
- ◆ Greater global competition

Falling Barriers to Movements of Goods, Services and Factors

- ◆ Reduction and/or elimination of tariff and non-tariff barriers
- ◆ WTO, European Union, NAFTA, ASEAN Free Trade Area, other free trade areas
- ◆ Non-tradable services become increasingly tradable (back offices, call centers, wholesale and retail distribution)
- ◆ Foreign direct investment (FDI) and national treatment
- ◆ Globalization of the capital market

Implications of Rising Globalization

- ◆ Specialization in tasks rather than products by firms—finding a niche in the global supply chain that maximizes value-added; higher-value-added parts of the supply chain have much less competition (Intel, Microsoft, TSMC)
- ◆ Specialization in tasks enables the realization of economies of scale—It is more efficient for firms to expand horizontally (to supply multiple customers) rather than to integrate vertically
- ◆ Trade in “Intermediate Inputs” and “Services” rather than finished “Products”
 - ◆ A substantial proportion of world trade is intra-company trade
- ◆ The non-durability of industries, firms and products—no industry, firm or product can last forever
- ◆ The necessity of reduction of fixed costs
- ◆ The necessity of government assistance to facilitate adjustments--a credible and sustainable social safety net; training and re-training of displaced workers
- ◆ Changing the relative returns between tangible and intangible capital in favor of intangible capital—the rising importance of flexible skills, intellectual capital (patents and copyrights), and reputational capital

Implications of Rising Globalization

- ◆ The importance of large markets
 - ◆ Leveraging intangible capital--economies of scale in the utilization of intangible capital implies that the rate of return depends on reaching as large a market as possible
 - ◆ Standardization and standard setting and establishment of brand names generate market economies of scale (the higher the market share, the higher the profit margin)
 - ◆ Leaving large markets alone gives potential competitors an opening to establish themselves
- ◆ The importance of openness—global subdivision of the production process implies that an economy must be ready to take any link or links of the global supply chain in which it has a comparative advantage—sometimes a product may have to go in and out of the same economy four or five times undergoing different processing before being shipped to the final consumers (import quotas and arcane country of origin rules have much to do with back and forth movement of goods in process across economies). A free trade policy on both the export and the import side helps enterprises rationalize and optimize their position(s) in the global supply chain.

Implications for Developing Countries

- ◆ Globalization facilitates and encourages worldwide search for sources of supply--hence new opportunities but also competitive challenges
- ◆ Globalization under the IT revolution facilitates and encourages “de-verticalization” or “fragmentation”--the need to identify, improve and sharpen “core competence” in order to survive; productivity can actually be enhanced by taking advantage of the opportunities for “de-verticalization” and “out-sourcing”
- ◆ The globalization of supply chains offers opportunities and hazards—more foreign direct investment but also more uncertainty because of greater footlooseness of foreign investors and potential competition elsewhere
 - ◆ Social safety net, nimble businesses and flexible workers
 - ◆ Hospitable legal, tax and competitive environment for start-up firms
 - ◆ Promotion of a culture of open communication and mobility; acceptance of risk and failures; network externalities and the benefits of networking

Implications for Developing Countries

- ◆ Developing countries have the ability to leap-frog--there are no vested interests to protect; no existing business to be cannibalized; there can be creation without destruction
 - ◆ e.g., mobile and wireless telephones; debit and credit cards instead of checks

Globalization and Investment Diversification

- ◆ Geographical diversification has to be re-thought because of globalization
 - ◆ Diversification by multinational corporations: e.g., IBM is not a U.S. risk because of its significant business around the globe; similarly, Nestle is not a Swiss risk; these are all globally diversified corporations
 - ◆ Covariance due to supply-chain connections, e.g., Dell, and its sub-contractor in Taiwan, Quanta Computer, face the same risks—Quanta is not really a Taiwan risk
 - ◆ Covariance of markets—the stock markets have in recent years tended to move together
- ◆ There are gains from geographical diversification only if the economic performance of the different regions of investment are uncorrelated or negatively correlated
- ◆ The apparent “home bias” of the portfolios of domestic investors may be due to legal restrictions (both outbound and inbound), explicit or implicit restrictions on foreign ownership, transactions costs (including information acquisition and monitoring), corporate governance (and available float for the general public), competitiveness and fairness of the stock market, and exchange rate risks.
- ◆ China, India, and potentially Latin America are candidates for investment if diversification is the objective because they are large economies the rates of growth of which are not very sensitive to what happens outside

De-Verticalization, Fragmentation and Outsourcing—Manifestation in the United States

- ◆ The “New Economy” facilitates and encourages the process of “de-verticalization” or “fragmentation” and out-sourcing.
- ◆ The need for every firm to identify, improve and sharpen “core competence” in order to survive; productivity can actually be enhanced by taking advantage of the opportunities for “de-verticalization” and “out-sourcing”
 - ◆ e.g., the choice amongst being a designer, manufacturer or a marketer (Nike, Taiwan Semi-conductor Manufacturing Corporation)
- ◆ Specialization of firms in “Tasks” rather than “Products”
 - ◆ Global vertical division of labor--global supply chains
- ◆ Specialization results in lower costs, greater output, and more new varieties of products and services
- ◆ Realignment of the traditional industrial structure
- ◆ Down-sizing as well as proliferation of firms
 - ◆ Outsourcing
 - ◆ Reduction of middle management
 - ◆ Small and medium-sized firms can have access to high quality services previously unavailable on the market
 - ◆ Small and medium-sized firms can specialize in niche markets
- ◆ The innovations connected with the Internet have been made mostly by small- and medium-sized start-up firms rather than large, established corporations.
- ◆ Small and medium-sized firms are more nimble, and hence can adjust much more quickly.

Impacts on the Macroeconomy

- ◆ Existing demands for goods and services are supplied by new entrants into the businesses, most of them small and medium-sized start-up firms, using new technology.
 - ◆ e.g., internet bookstores wipe out real brick and mortar bookstores; internet securities trading knock out traditional stock brokerages (however, there is still a role to play--assurance of fulfillment, assumption of credit and performance risks--reputation and brand name are still important)
 - ◆ The new firms will take away the business from the old firms--"Creative Destruction"
- ◆ The rise of completely new businesses
 - ◆ "Cuusoo" (Japan)--consumer participation in the design of new products
 - ◆ e.g., special suppliers of tools for left-handed individuals

The Entry of New Players on the Global Market (China, India and Russia)

- ◆ Re-alignment of comparative advantages
 - ◆ Both existing and new players can benefit
 - ◆ Comparative advantages will change
 - ◆ Adjustments will be necessary
 - ◆ There should be sufficient gain for everyone to more than compensate all the losers
- ◆ There will be increased demands for goods and services (aircrafts, cell phones, computers and tourism services)
- ◆ There will be little upward pressure on the wage rate of unskilled labor for many years to come

The Challenge of Chinese Economy

- ◆ Mainland China is more complementary than competitive (as opposed to, say, South Korea or Singapore). There is also, in general, relatively little overlap in the goods exported by Mainland China and Taiwan, except during a short period of transition, e.g., Taiwan, which used to be the largest exporter of shoes in the world, no longer exports shoes whereas Mainland China has become the largest shoe exporter in the world, mainly through Taiwan-invested firms in Mainland China. There was a short period of transition during which Taiwan shoe manufacturers relocated themselves on the Mainland, principally in Guangdong.
- ◆ Mainland China presents an opportunity because of its own vast domestic market, and because of its almost unlimited supply of low-cost labor—it is thus not only an export base, but a market in itself

The Challenge of Chinese Economy

- ◆ The large and rapidly growing domestic market enables the realization of economies of scale, and the possibility of amortization of significant investments in innovation and brand name building, standard setting, and other forms of intangible capital. E.g. Kangsifu's success in brand building in the Mainland; Acer could have become No. 1 on the Mainland; Mainland China is potentially a large enough market for Linux-based software to challenge the Windows operating system of Microsoft; and for a global mobile phone standard to emerge--GSM of Europe versus CDMA of the U.S. versus the TDCDMA of China itself; and for determining the relative success of Airbus versus Boeing.
- ◆ Leading firms cannot afford to leave a large and rapidly growing potential market alone because a large enough market may nurture in time a major competitor.
- ◆ Taiwan firms have a comparative advantage over the firms of other countries and regions because of cultural, ethnic and linguistic affinities.

The ASEAN Free Trade Area (AFTA)

- ◆ Intra-ASEAN tariff rates have been lowered to 5% on Jan. 1, 2002 with the inauguration of the ASEAN Free Trade Area (AFTA) among Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand. The goal is to reach zero tariff rate within AFTA by 2010. The reduction in tariffs applies to 90% of products provided the ASEAN content of the product exceeds 40%.
- ◆ Khmer Republic, Laos, Myanmar and Vietnam are expected to join AFTA in 2006 and reach zero tariff rate within AFTA by 2015.
- ◆ Specific protection on manufactured and agricultural products still remains.

The China-ASEAN Free Trade Area

- ◆ Chinese Premier ZHU Rongji first proposed in Brunei in November, 2001 a new free trade area, covering China and the ASEAN (Brunei, Indonesia, Khmer Republic, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam), to be created within ten years
- ◆ A 3 trillion US\$ market and 1.7 billion consumers
- ◆ Complementarity (primary raw materials) and competition (light manufactures)
- ◆ Opening the economies for trade—China will become a major export market for the ASEAN and vice versa
- ◆ The free trade area will promote foreign direct investment in the ASEAN region itself through the enlargement of the potential market
- ◆ Further agreement was reached in Khmer Republic in November, 2002 on “early harvest”
- ◆ A mutual support program for the currencies of one another, leading possibly to a currency area
- ◆ Simultaneous, coordinated expansions among the East Asian economies can help accelerate the recovery of the depressed economies of East Asia
- ◆ Significant political implications

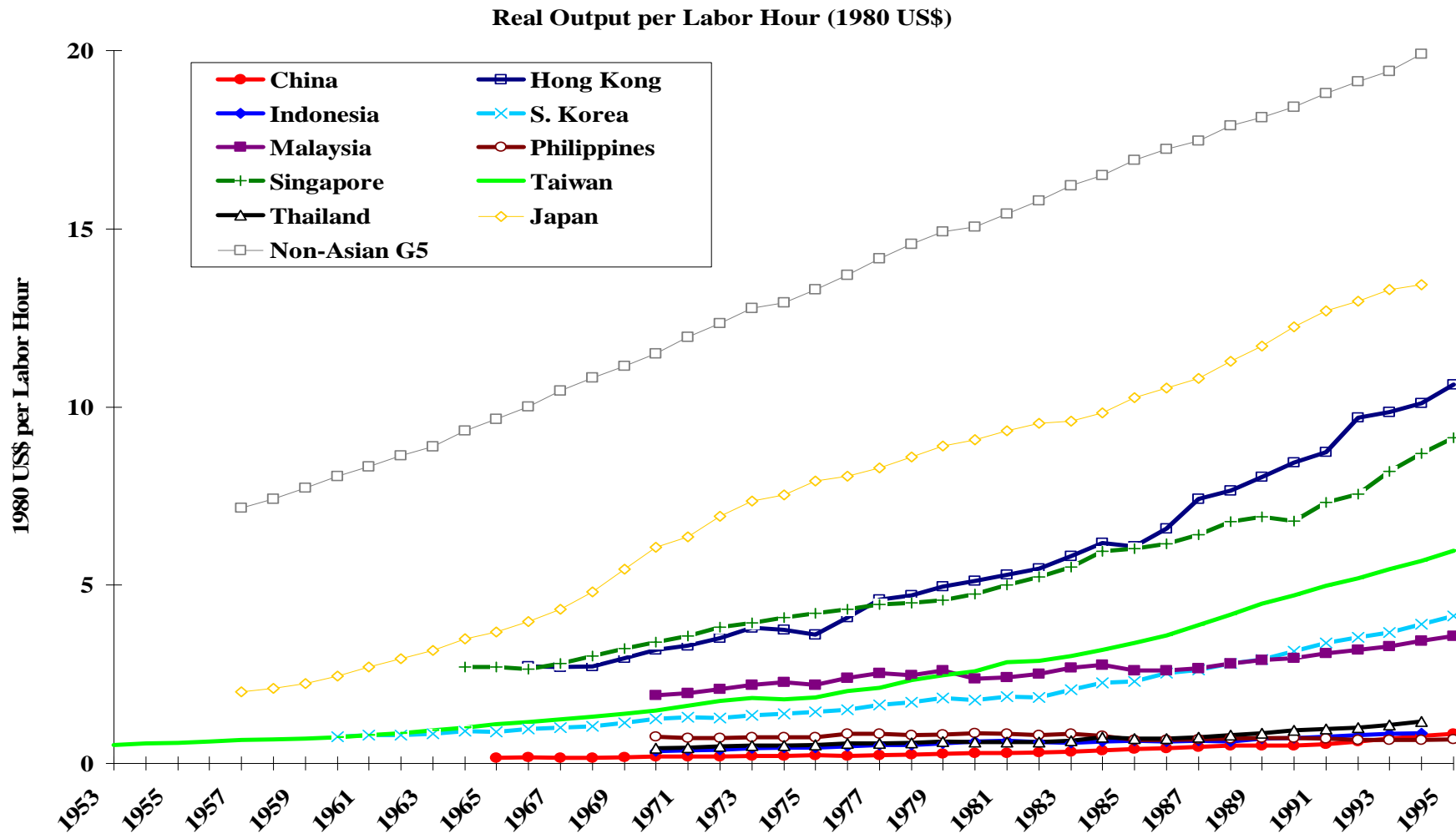
The Sources of Economic Growth: Findings of Kim & Lau As Reported by Krugman (1994)

- ◆ Using data from the early 1950s to the late 1980s, Kim and Lau (1992, 1994a, 1994b) find that:
- ◆ (1) No technical progress in the East Asian NIEs but significant technical progress in the industrialized economies (IEs)
- ◆ (2) East Asian economic growth has been input-driven, with tangible capital accumulation as the most important source of economic growth (the latter applying also to Japan)
 - ◆ Working harder as opposed to working smarter
- ◆ (3) Technical progress is the most important source of economic growth for the IEs, followed by tangible capital, accounting for over 50% and 30% respectively, with the exception of Japan
 - ◆ NOTE THE UNIQUE POSITION OF JAPAN!
- ◆ (4) Technical progress is purely tangible capital-augmenting and hence complementary to tangible capital

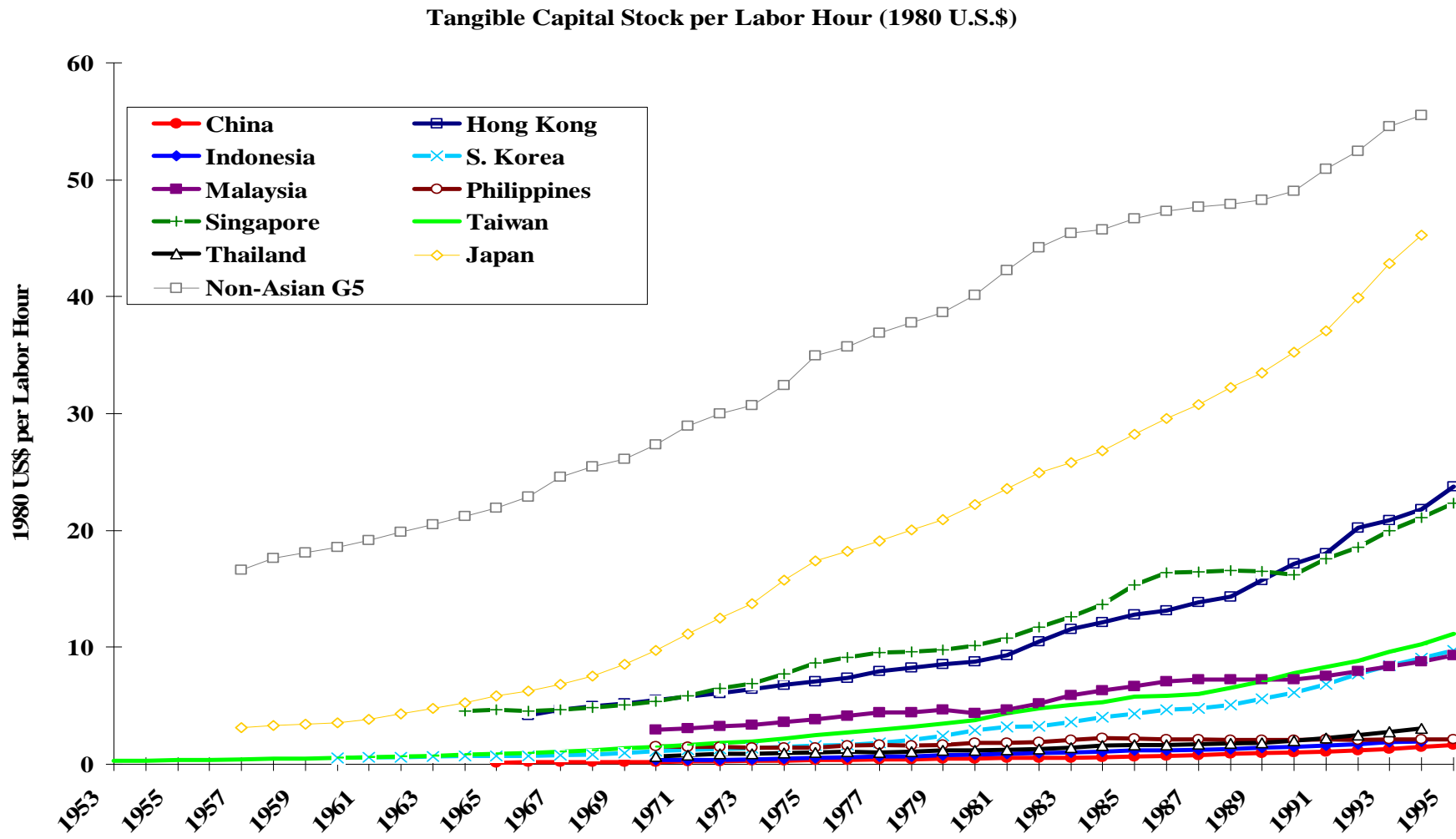
The Sources of Economic Growth--Developing Economies in East Asia

- ◆ Different types of measured inputs play different roles at different stages of economic growth
- ◆ Tangible capital accumulation is the most important source of growth in the early stage of economic development
- ◆ But simply accumulating tangible capital is not enough--it must also be efficiently allocated
- ◆ Efficient tangible capital accumulation is the major accomplishment of the East Asian NIEs, including Taiwan, in the postwar period
 - ◆ Market-directed allocation of new investment, aided by export orientation, promotes efficiency
 - ◆ Private enterprises have the incentives for prompt self-correction
- ◆ Intangible capital accumulation becomes important only after a certain level of tangible capital per worker is achieved but has begun to be important for some East Asian NIEs such as South Korea and Taiwan

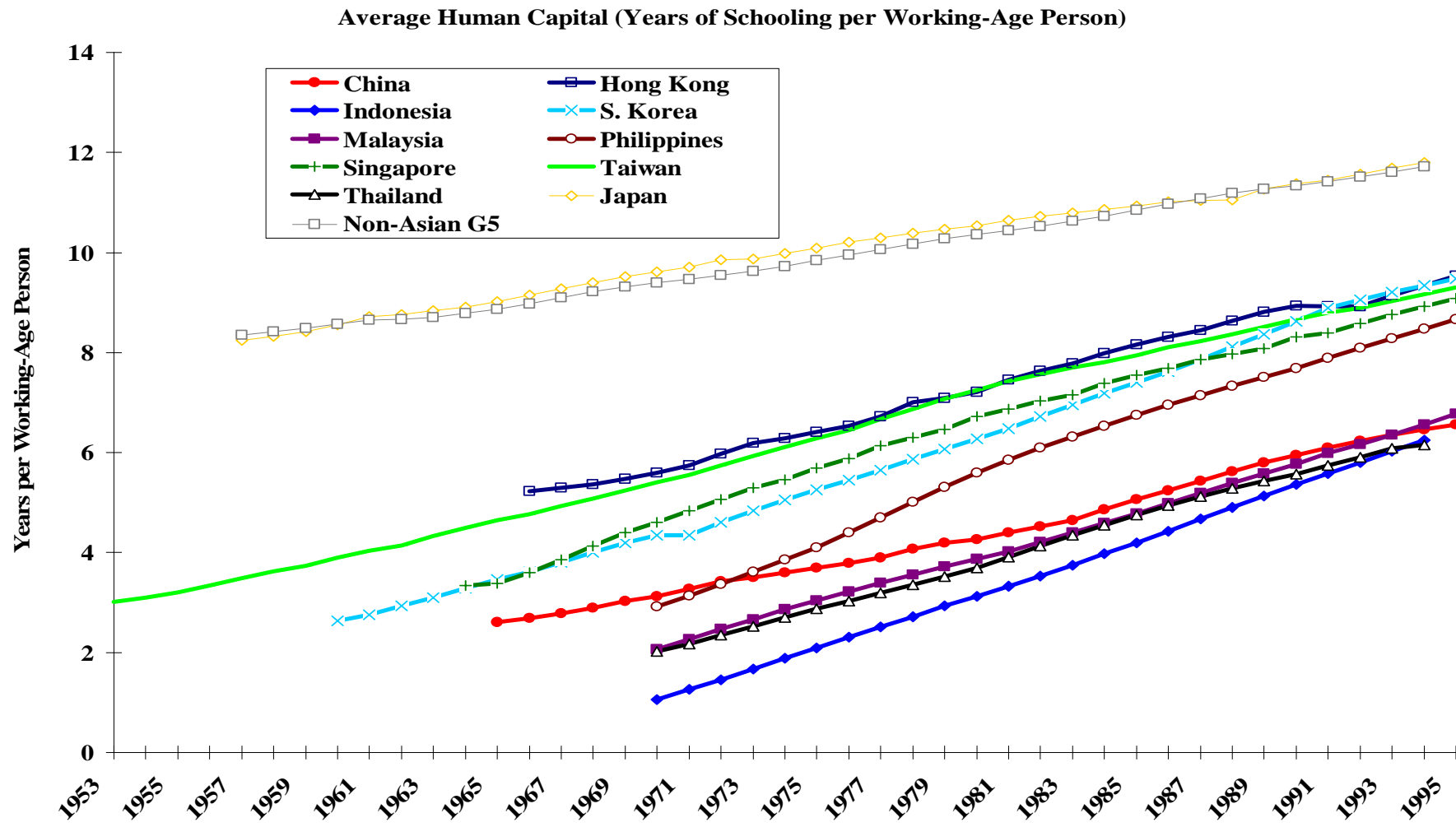
Real Output per Labor Hour (1980 US\$)



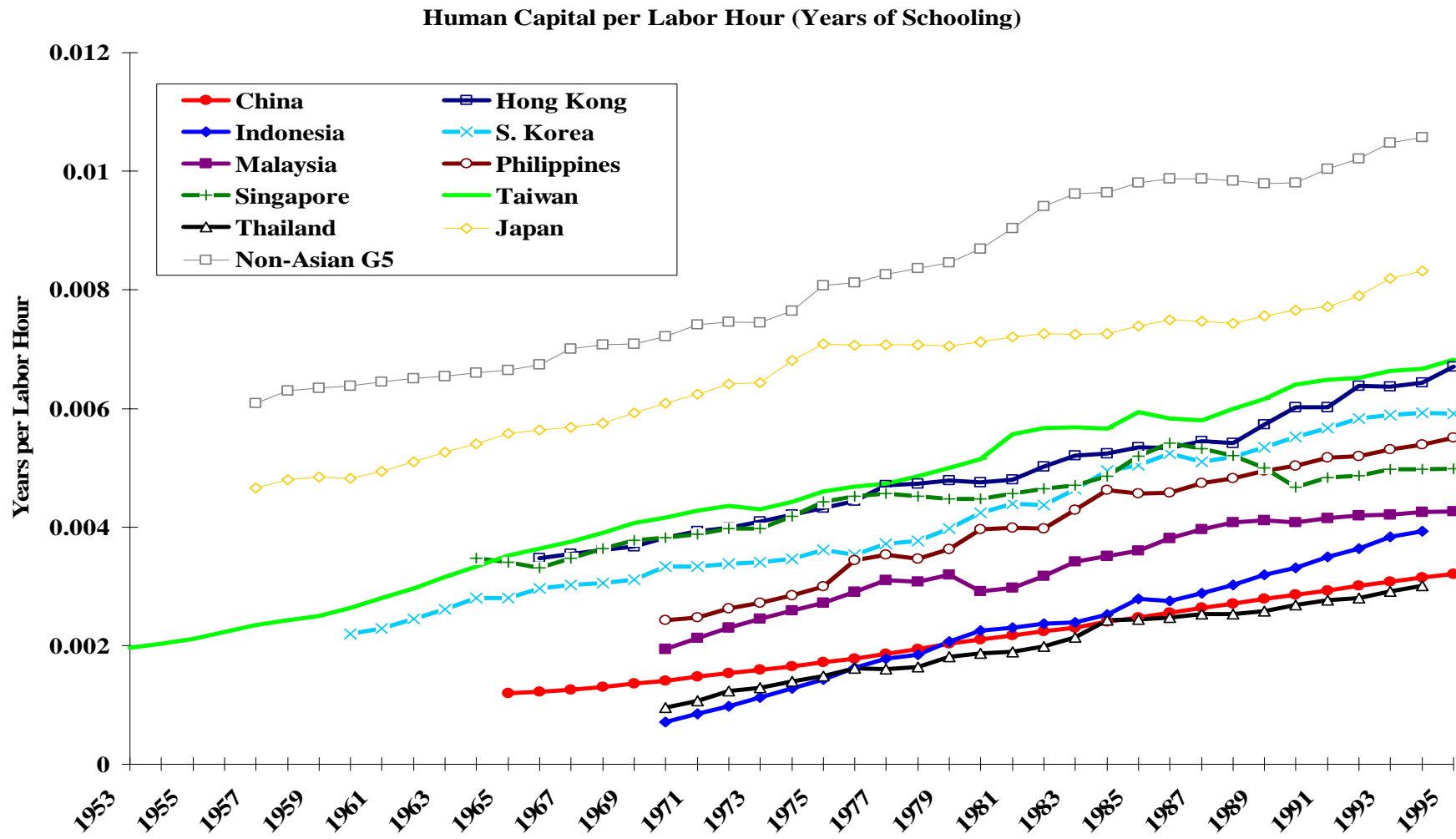
Tangible Capital Stock per Labor Hour (1980 US\$): Selected Economies



Average Human Capital (Years/Working-Age Person: Selected Economies)

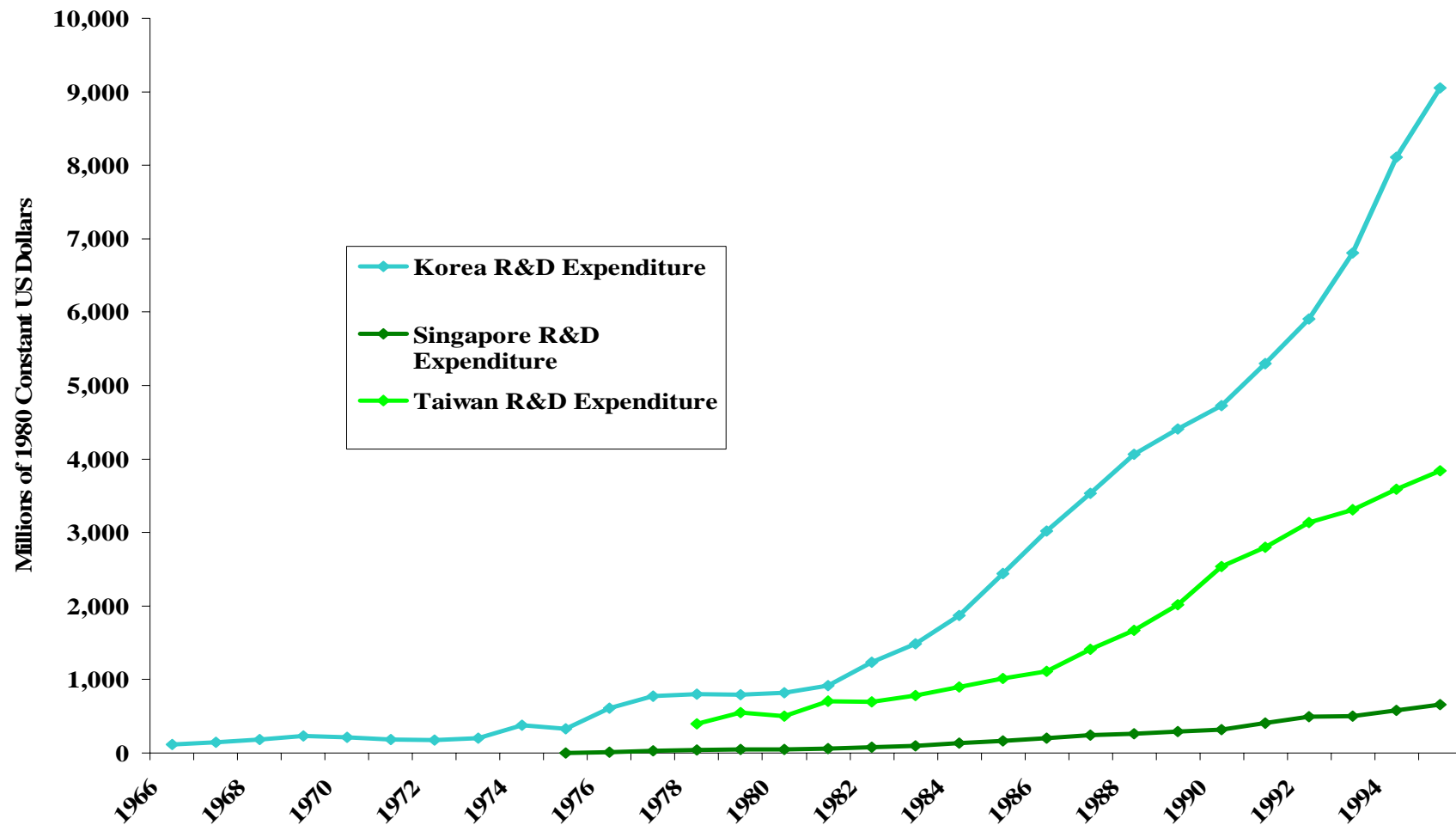


Human Capital per Labor Hour (Years of Schooling): Selected Economies



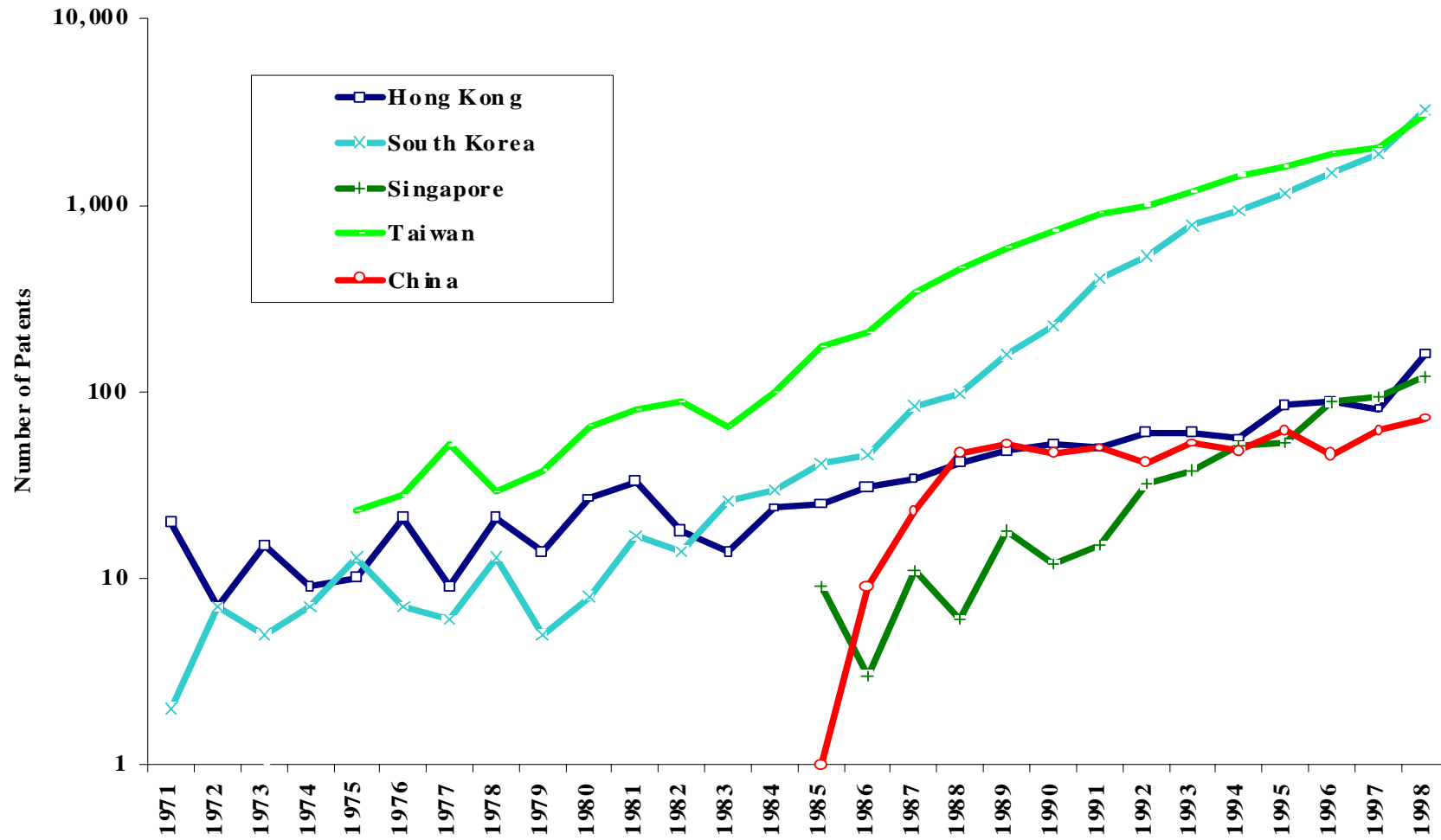
R&D Expenditures: 3 East Asian Newly Industrialized Economies

Real R&D Expenditures (3 NIEs)



Patents Granted in the United States—Selected East Asian Economies

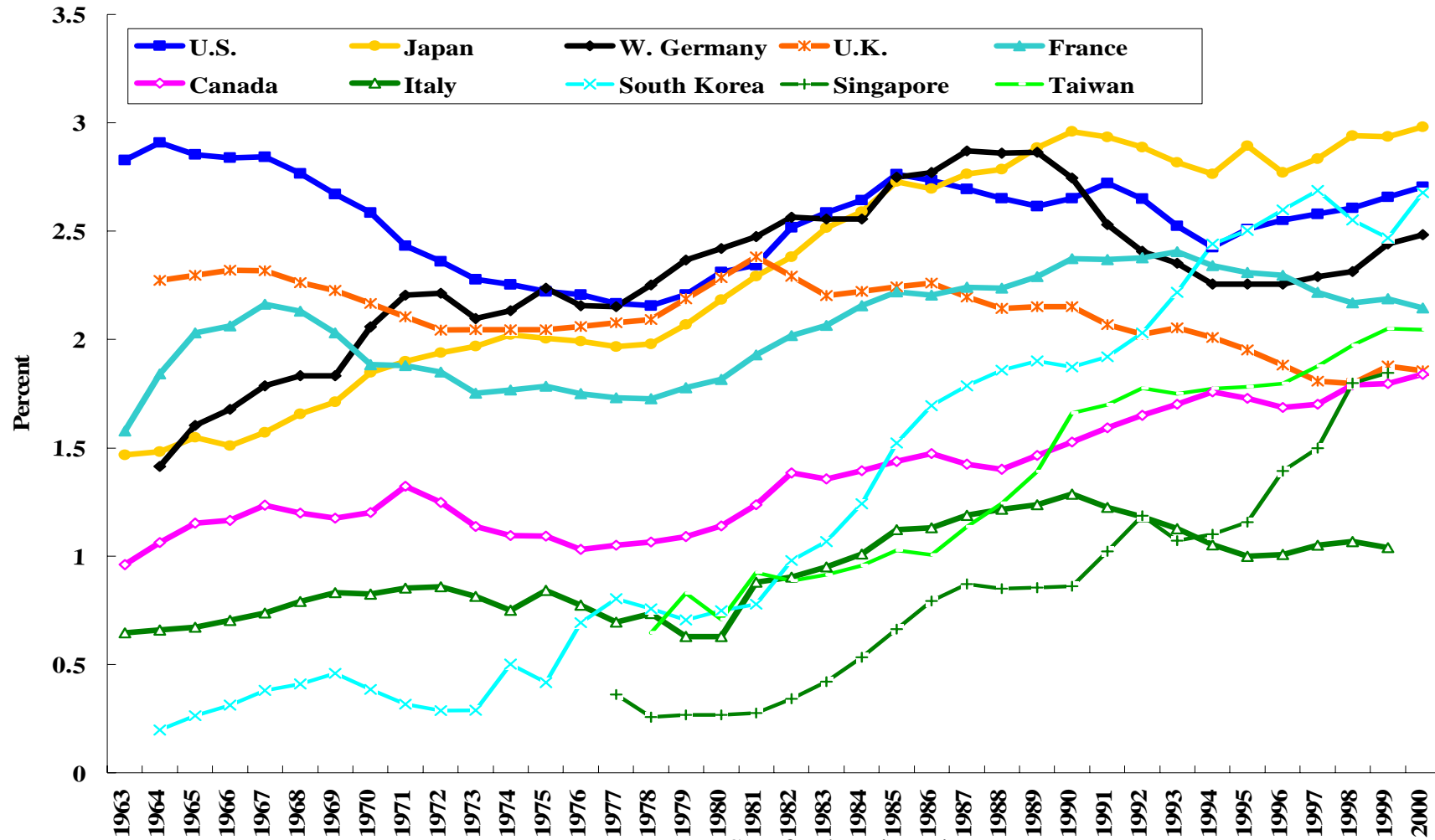
Figure 7.2: Number of Patents Granted Annually in the United States, Four East Asian NIEs and China



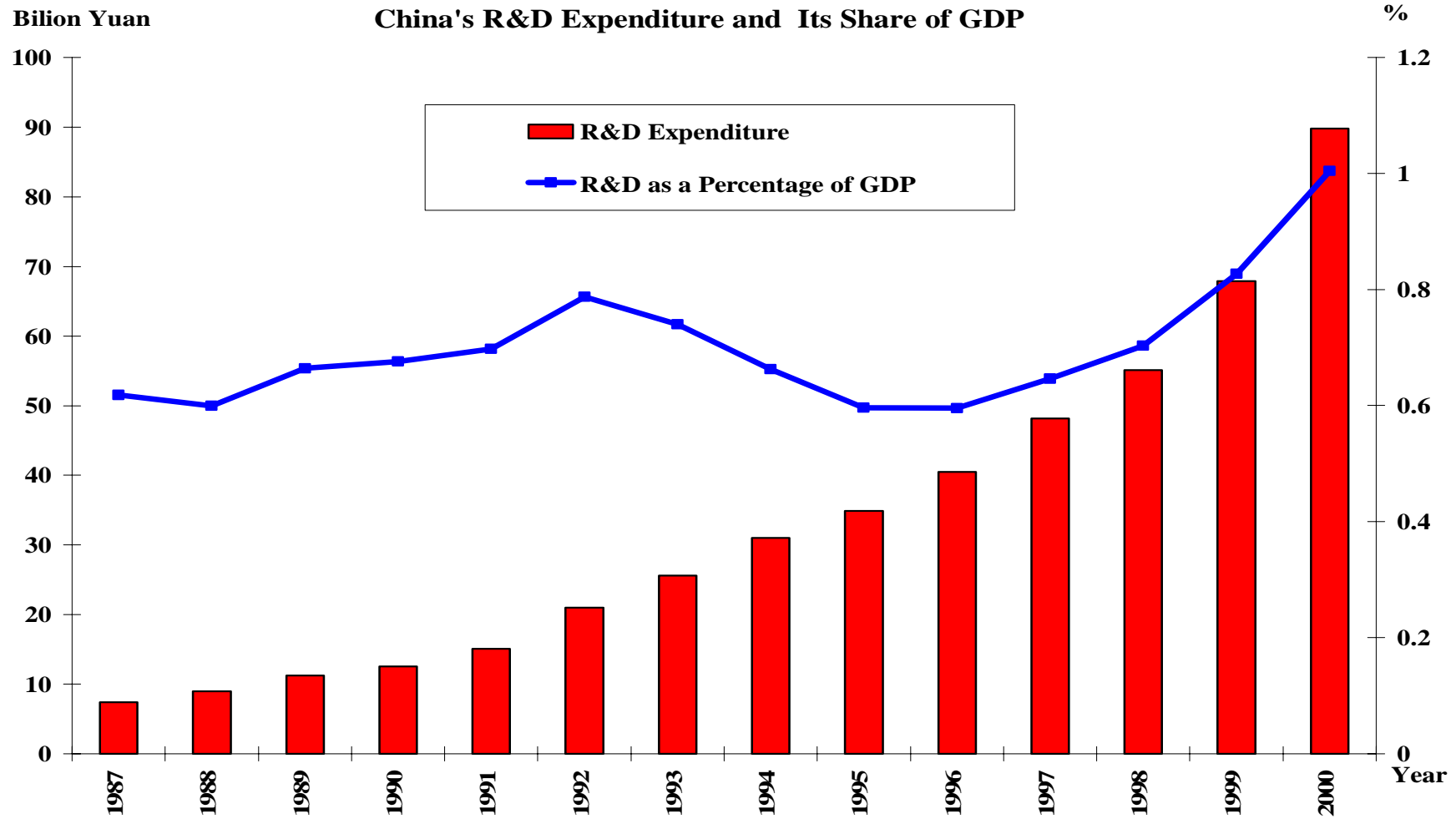
Lawrence J. Lau, Stanford University

R&D Expenditures as a Ratio of GDP: G-7 Countries and 3 East Asian NIEs

Figure 8.1: R&D Expenditures as a Percentage of GDP: G-7 Countries and 3 East Asian NIEs

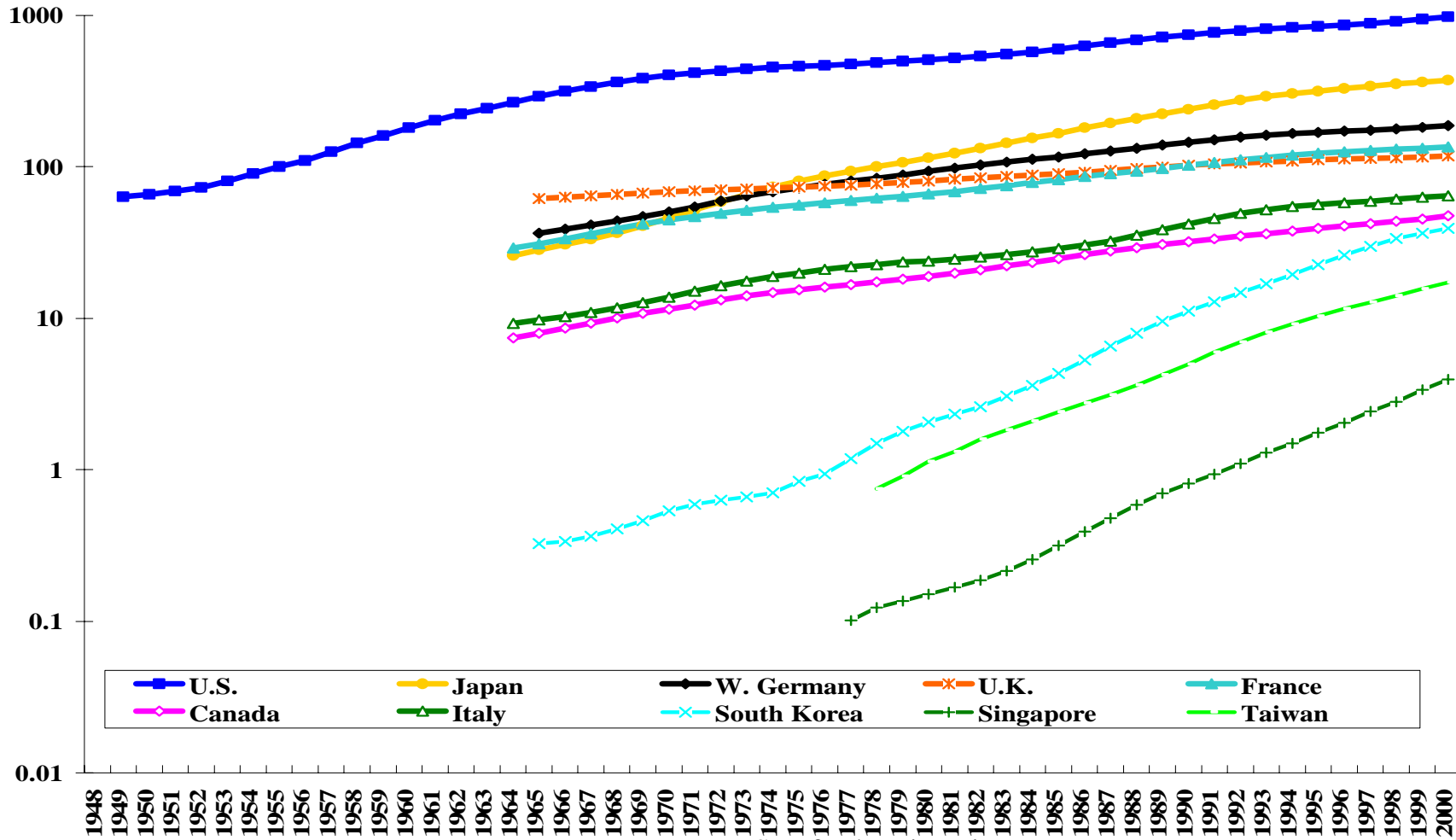


R&D Expenditures: China



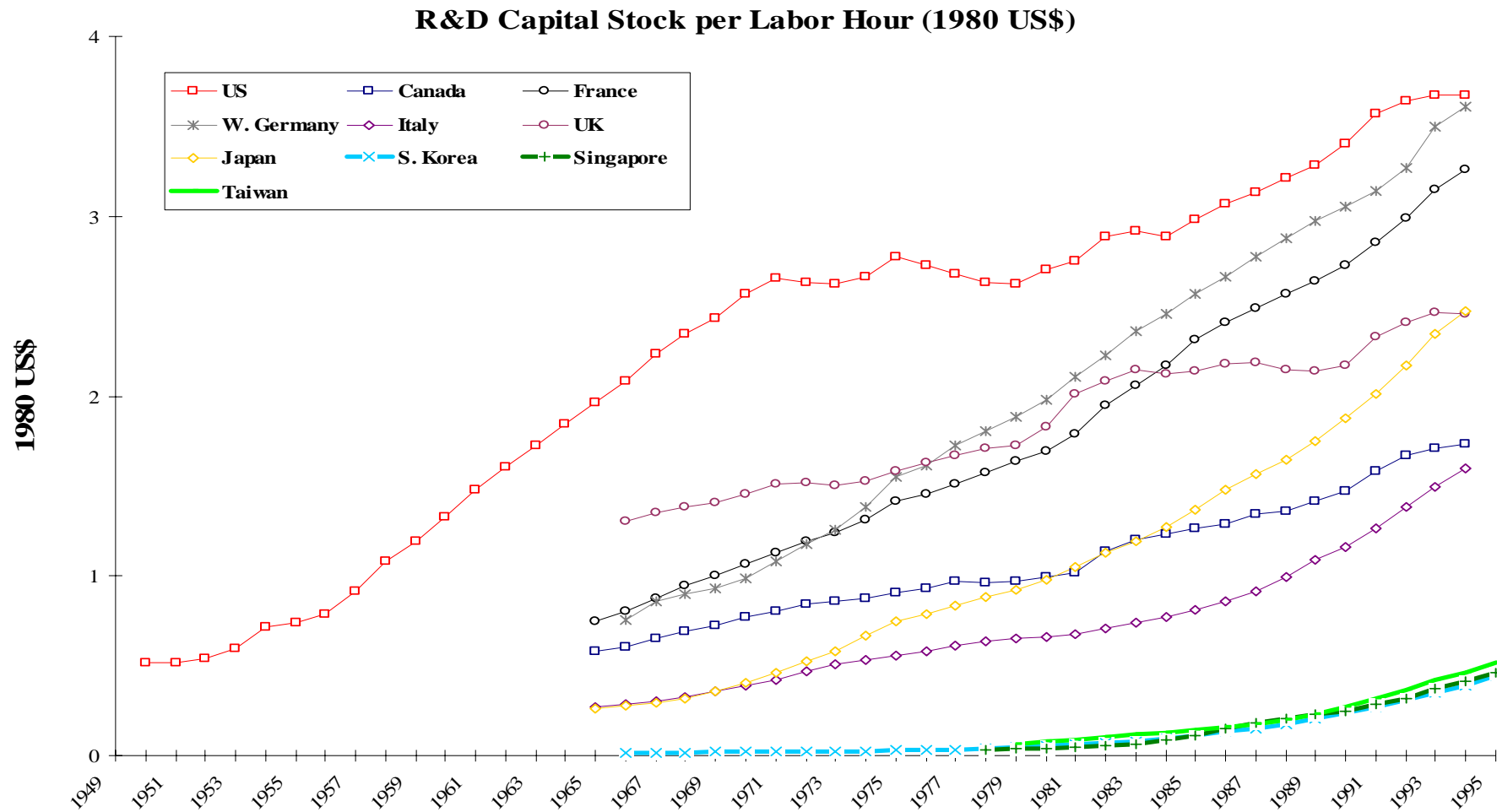
R&D Capital Stocks: G-7 Countries and 3 East Asian NIEs

Figure 8.2: R&D Capital Stocks in Billions of 1980 U.S. Dollars



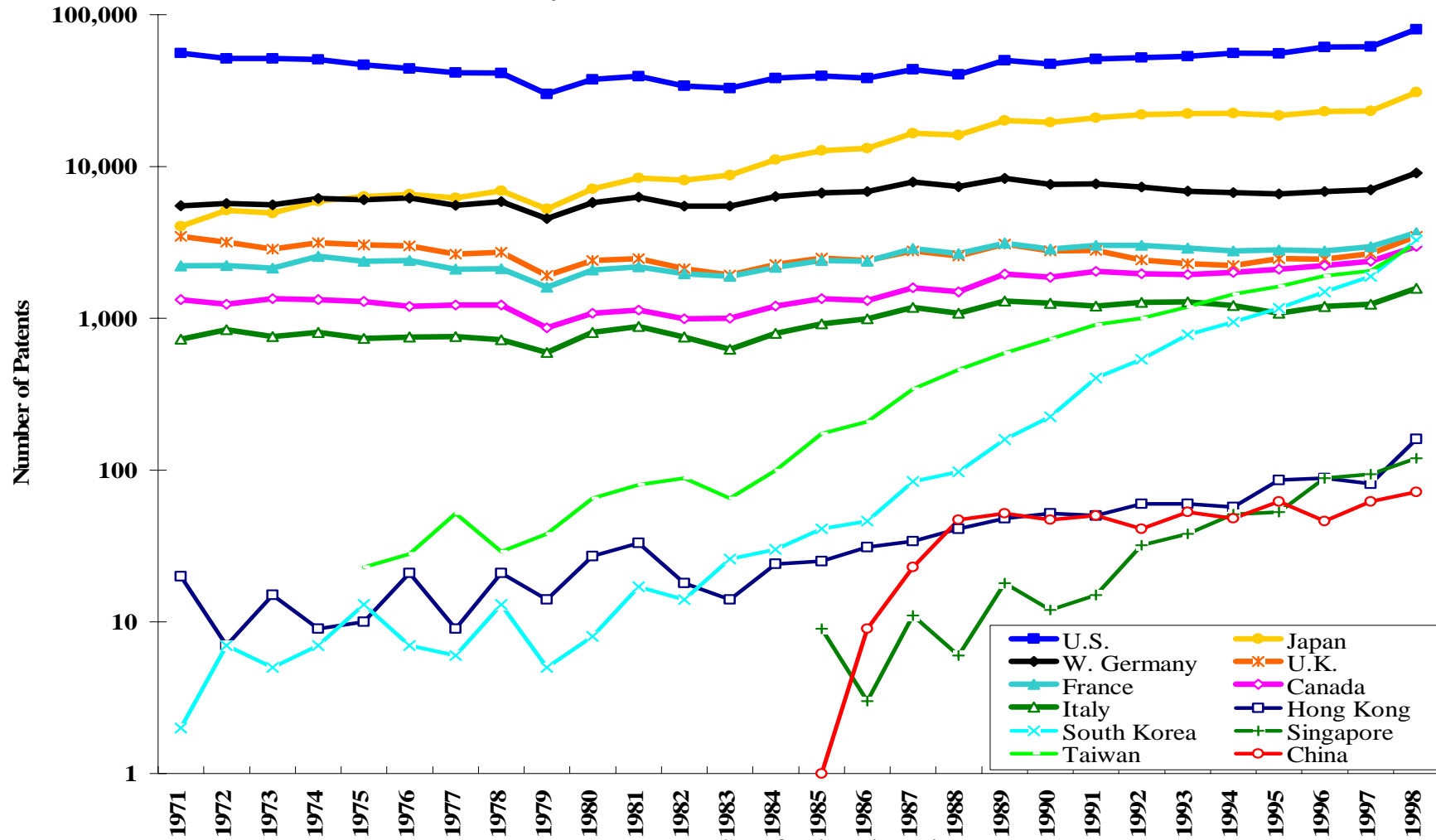
Lawrence J. Lau, Stanford University

R&D Capital Stock per Unit Labor



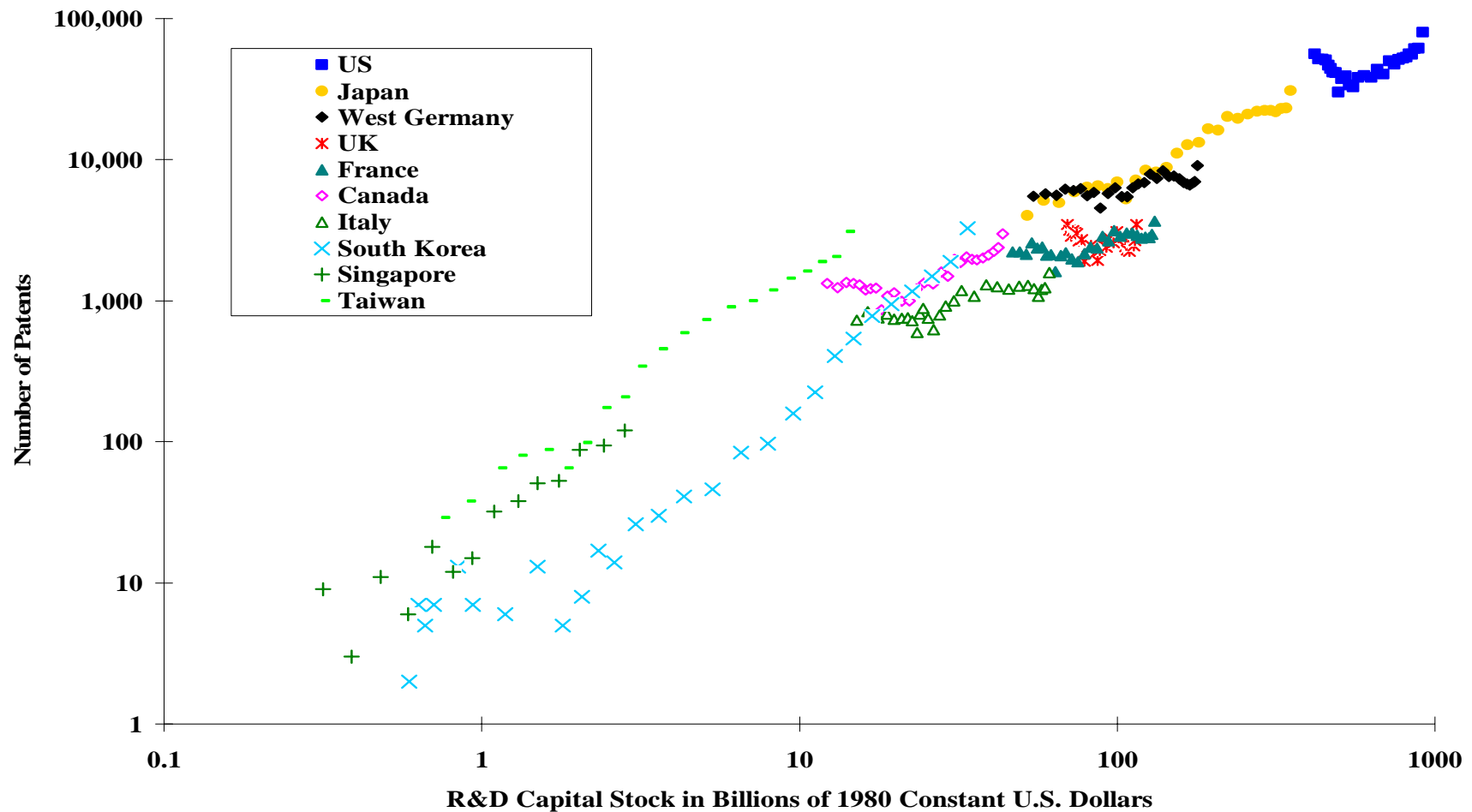
Patents Granted in the United States: G-7 Countries and East Asian Developing Countries

Table 8.3: Patents Granted Annually in the United States: G-7 Countries, 4 East Asian NIEs and China



Patents Granted in the United States and R&D Capital Stock

Figure 8.4: The Number of U.S. Patents Granted Annually vs. R&D Capital Stocks



R&D Capital

- ◆ Improvements in technology (equivalently technical progress or the ability to produce greater output with the same or less inputs) are mostly the results of purposive activities such as investment in R&D
- ◆ R&D capital is complementary to both tangible capital and to human capital
- ◆ The developed economies are way ahead of the developing economies in terms of current investments in R&D as a proportion of GDP as well as aggregate R&D capital stock
- ◆ Domestic R&D capital and human capital are essential for the import and absorption of technology

Sources of East Asian Economic Growth with 4 Inputs and Technical Progress

Table 8.3 Growth Accounts: Contributions of the Sources of Growth (Percent)
(4-Input Model with Human Capital and R&D Capital)

G-7 + 3 NIEs	Sample Period	Tangible Capital	Labor	Human Capital	R&D Capital	Technical Progress
South Korea	65-95	62.42	13.64	2.07	21.87	0.00
Singapore	77-95	48.51	21.98	1.39	28.12	0.00
Taiwan	78-95	57.44	11.11	1.28	30.44	0.00
Japan	64-94	43.95	5.21	0.94	15.10	34.84
Non-Asian G-7 Countries	65-94	33.31	3.70	1.30	13.11	48.58

Is East Asian Economic Growth Sustainable?

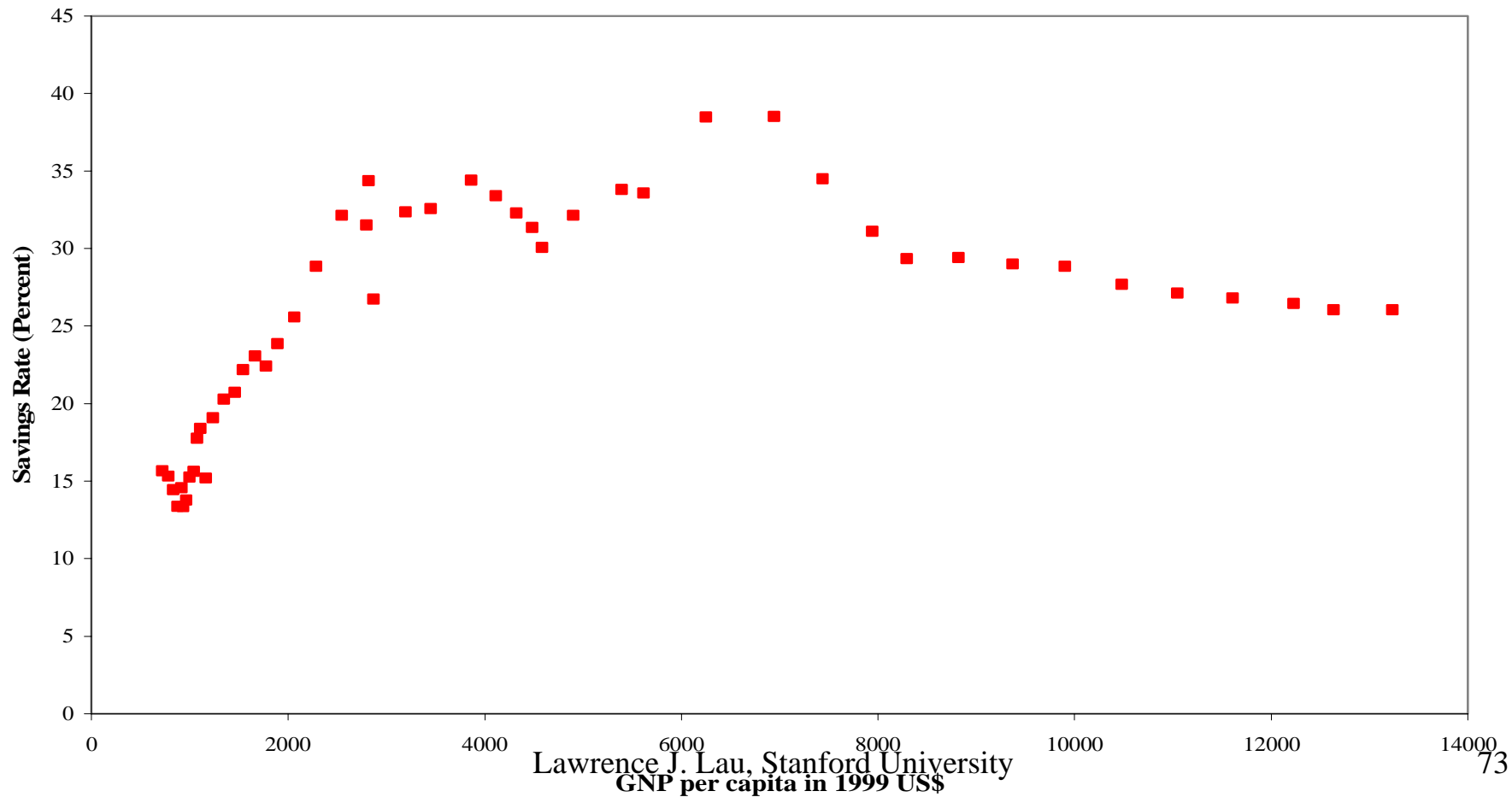
- ◆ East Asian economies have high national savings rates and high rates of investment in human capital
- ◆ The attractiveness of investment in intangible capital depends on the protection of intellectual property rights, which in turn depends on whether a country is a producer of intellectual property--some of the East Asian economies, e.g., Hong Kong, South Korea, Singapore and Taiwan are ahead of other East Asian economies with the possible exception of Japan on this score
- ◆ Intangible capital is different from tangible capital in three important aspects:
 - ◆ Intangible capital is freely mobile across countries
 - ◆ Intangible capital is simultaneously deployable in different locations without diminution of its effectiveness (increasing returns in the utilization of intangible capital)
 - ◆ Intangible capital enhances the productivity of existing tangible capital whereas additional tangible capital diminishes the productivity of existing tangible capital
- ◆ Because of its complementarity with tangible capital, investment in intangible capital can retard the decline in the marginal productivity of tangible capital and counteract the “Krugman effect”
- ◆ There is also evidence of positive technical progress in the more recent period in South Korea, Singapore and Taiwan, reflecting their increased investment in intangible capital
- ◆ The people of Taiwan (and East Asia in general) are entrepreneurial, hard-working, and thrifty--all they need is a good, market-friendly, predictable and stable environment

Long-Term Sustainability

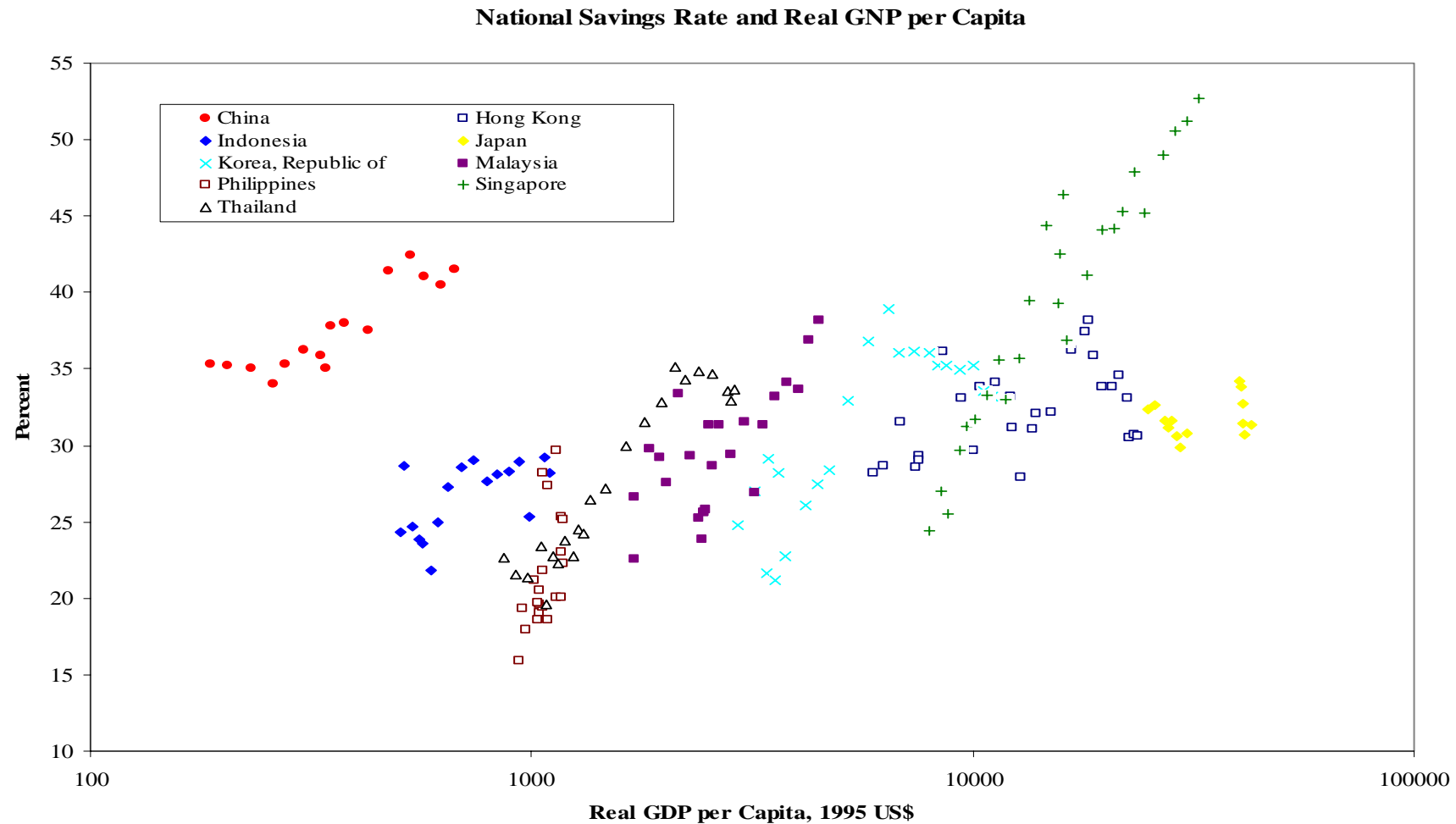
- ◆ Improvements in technology (equivalently technical progress or the ability to produce greater output with the same or less inputs) are mostly the results of purposive activities such as investment in R&D
- ◆ R&D capital is complementary to both tangible capital and to human capital
- ◆ The developed economies are way ahead of the developing economies in terms of current investments in R&D as a proportion of GDP as well as aggregate R&D capital stock
- ◆ Domestic R&D capital and human capital are essential for the import and absorption of technology

The Savings Rate and Real Output per Capita: Taiwan

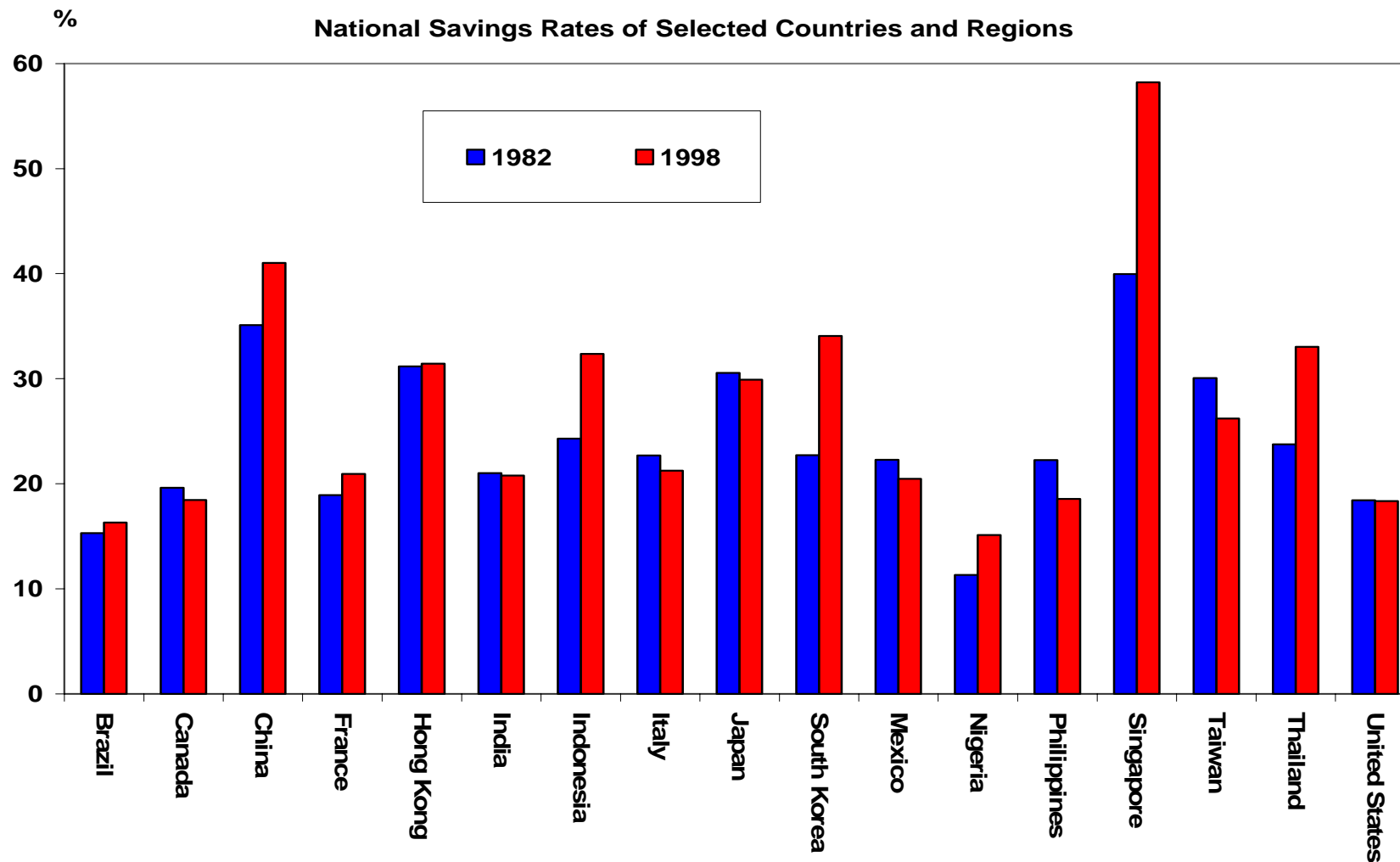
Savings Rate versus Real GNP per Capita



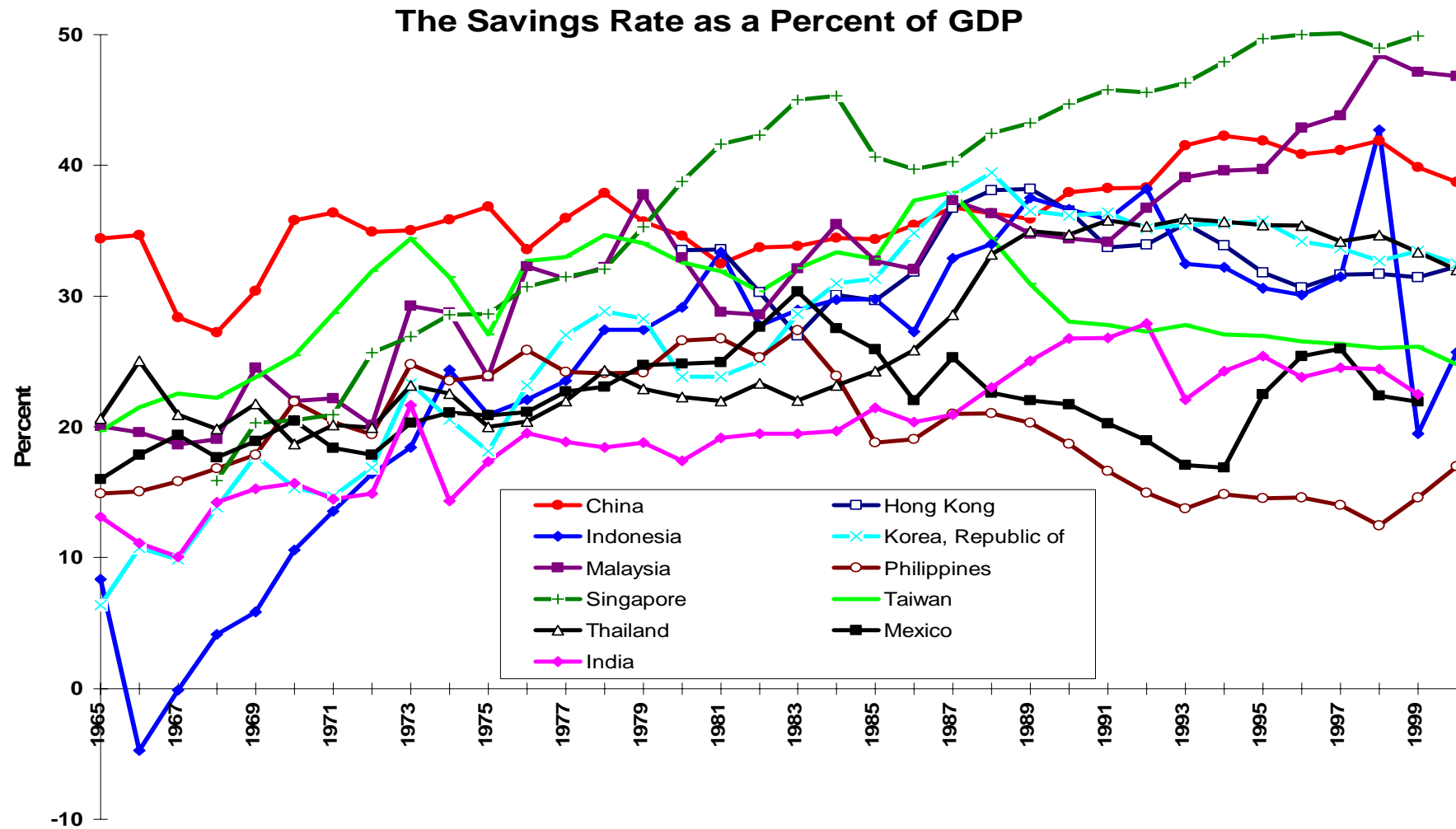
The Savings Rate and Real Output per Capita: East Asian Economies



National Savings Rate as a Percent of GDP: Selected Countries and Regions



The Savings Rate as a Percent of GDP: Selected East Asian Countries and Regions



The Biotechnology Revolution

- ◆ Two major areas of potential payoffs:
 - ◆ Food and agriculture--Drought, disease and pest-resistant crop strains; healthy, disease-resistant livestock breeds; rapid-growth plants
 - ◆ Medical care and public health—Gene therapy; new cures for diseases; preventive therapy; genetically specific vaccines, drugs and treatments

Elements of the U.S. Accounting Scandals

- ◆ Overstatement of current revenue and understatement of current costs; Overstatement of the value of assets and understatement of the value of liabilities
 - ◆ Accelerated recognition of future, possibly uncertain, unrealized, and unearned revenue and capitalization of current expenses (WorldCom)
 - ◆ Use of special purpose vehicles (SPVs)
 - ◆ Unloading unprofitable operations
 - ◆ Conducting non-arms-length related-party transactions
 - ◆ Keeping liabilities off the corporate balance sheet
 - ◆ Use of “fair” rather than market valuation of assets, including illiquid financial derivative instruments, and future revenue streams

Reliability of Auditors

- ◆ The net worth of the auditors is an important determinant of its ultimate trustworthiness—auditors with little or no net worth are subject to moral hazard because they have nothing to lose. One important lesson of the failure of Arthur Andersen is that the audit firm actually provides compensation to the shareholders who have suffered losses due to their reliance on audits certified by Andersen.
- ◆ The perceived and/or actual independence of the auditors may be affected if there is potential conflict of interest. Since the auditors are hired and paid by the firm they audit, conflict between the (short-term) financial interests of the auditors and their (long-term) professional reputation may be inevitable. However, conflict of interest may be alleviated or avoided if:
 - ◆ The audit firm only audits and provides no additional advisory and consulting services;
 - ◆ The staff of the audit firm is not permitted to join a firm that has audited by the audit firm within the past three years;
 - ◆ Mandatory rotation of audit firms or at least lead audit partners every three to five years.

Transparency and Reliability of Financial Statements

- ◆ The difference between a principles-based standard (IASB) and a rules-based standard (GAAP)—one can circumvent rules much more easily than principles
 - ◆ The use of “special-purpose vehicles (SPVs)”
 - ◆ The treatment of off-balance sheet debt, liabilities and obligations
 - ◆ The treatment of intra-firm or related-party transactions
- ◆ The connivance of financial institutions in facilitating “hidden transactions”
- ◆ The moral hazard of financial institutions, e.g.,
 - ◆ Investment banking business in return for loans
 - ◆ Repayment of loans made by the commercial banking arm by a client from the proceeds of new shares issuance by the same client underwritten by the investment banking arm
 - ◆ Shuffling non-performing assets among different entities
- ◆ Should China maintain the Glass-Steagall separation between commercial banking and investment banking? It should as long as there is de facto deposit insurance on deposits at commercial banks.

The Role of Independent Directors

- ◆ One cannot rely entirely on independent directors for good corporate governance. Independent directors have the problem that:
 - ◆ If they are not paid enough, they have no incentive to pay proper attention to the firm's business
 - ◆ If they are too well paid, they are beholden to the management (and thus are not really independent)
- ◆ For good corporate governance, there is no substitute to having shareholders owning a significant number of shares sitting on the Board of Directors. Only significant shareholders have the incentive to monitor the firm properly.

Aligning the Interests of Management and Shareholders

- ◆ Fixed versus variable compensation
- ◆ Stock options versus stock ownership
 - ◆ Stock options have the problem that it has no downside risk for the executive, thus encouraging moral hazard and hence greater risk-taking.
 - ◆ Stock options encourage an emphasis on short-term stock market performance at the expense of long-term goals.
 - ◆ Moreover, they lose all incentive effects if the market price of the stock falls significantly below the exercise price.
 - ◆ Stock options are actually a cost to the firm and to the shareholders.
 - ◆ Direct stock ownership by senior executives should be encouraged through the use of recourse stock purchase loans provided by the firm itself.
 - ◆ Vesting of stock purchase rights (and discounts, if any) over a period of time helps to retain senior executives and encourage loyalty.
- ◆ Many U.S. corporations have decided to expense the cost of “stock” options

The Importance of Monitoring

- ◆ Monitoring by the board of directors
 - ◆ The Chief Auditor and the Chief Financial Officer should be hired by the Board of Directors and report directly to the Board of Directors through the relevant Committees, independently of the management
 - ◆ The management information system should be independently accessible by the Chief Auditor, the Chief Financial Officer, and by the relevant Committees of the Board of Directors
- ◆ Monitoring by peers
 - ◆ Senior executives above a certain level should be expected to own shares in the firm that represent a significant proportion of their own personal net worths, providing them with financial incentives to monitor the behavior of one another