

**People's Republic of China—Hong Kong Special Administrative Region:
Selected Issues and Statistical Appendix**

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PEOPLE'S REPUBLIC OF CHINA—
HONG KONG SPECIAL ADMINISTRATIVE REGION¹

Selected Issues and Statistical Appendix

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Approved by the Asia and Pacific Department

January 25, 2001

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¹The term "country," as used in this paper, does not in all cases refer to a territorial entity that is a state as understood by international law and practice; the term also covers some territorial entities that are not states, but for which statistical data are maintained and provided internationally on a separate and independent basis.

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I. LONG-RUN FISCAL POLICY IN HONG KONG SAR¹

A. Introduction

1. **Hong Kong SAR's fiscal policy has traditionally been conservative.** The fiscal balance has been in deficit only twice in the last 15 years resulting in an accumulated surplus of about 35 percent of GDP. Also, fiscal policy has not been used countercyclically except during the Asian crisis.
2. **However over the next two decades, the fiscal situation could be strained due to a confluence of structural changes, both external and domestic.** On the expenditure side, the anticipated aging of the population will likely increase public spending on health care. Given Hong Kong SAR's largely service-based economy, to maintain competitiveness, labor skills will need to be continuously upgraded, which would exert increased pressure on education spending. On the revenue side, there is concern that the existing tax base is narrow and some taxes, such as stamp duties, could be eroded due to competition from other regional financial centers. These pressures on public finances could also strain the fiscal principles enshrined in the Basic Law—Hong Kong SAR's *de facto* constitution. The Basic Law exhorts the government to avoid deficits; keep spending increases in line with GDP growth; and maintain low tax rates.
3. **This chapter aims to:**
 - First, provide indicative estimates of how revenue and expenditure might evolve, reflecting the anticipated structural changes in the economy, in the next 20 years, under the baseline scenario which assumes unchanged tax and expenditure policies. These assumptions are hypothetical since they do not include government reaction to the changes in revenue and expenditure.
 - Second, estimate to what extent the projected revenue and expenditure developments under the baseline scenario of unchanged policies strain the fiscal principles of budget balance and expenditure growth as laid down in the Basic Law.
 - Third, gauge the degree to which potential countermeasures, for example, greater cost-sharing with the private sector in health, and new broad-based taxes such as a General Sales Tax, can alleviate the situation.
4. In practice, however, fiscal policy under the rules-based system will adjust automatically to meet these challenges. The government has traditionally acted promptly to any deterioration in the budget balance through consolidation efforts, including tax measures and expenditure cuts. Indeed, the authorities have already in the past two years introduced expenditure restraining measures and an array of public sector reforms—such as the Civil

¹This chapter was prepared by Jeanne Gobat (ext. 34413). The simulation model was constructed by Jonathan Millar, when he was a Summer Intern at the Fund in 2000.

Service Reform and the Enhanced Productivity Program—in order to achieve efficiency gains and contain expenditure growth.

5. The baseline scenario in the simulations, however, is conducted under the assumption of unchanged policies and their feedback effects are not modeled. Instead, a number of alternative scenarios—some based on hypothetical changes in fiscal policy—are discussed. The baseline and alternative scenarios are designed to be illustrative of the extent of the adjustment that might be needed to avoid straining the fiscal situation in light of the anticipated changes. The usefulness of constructing a hypothetical scenario based on unchanged policies is that although the scenario departs from the fiscal principles enshrined in the Basic Law, it serves to illustrate the extent of the adjustment—either annually or over the projection period—that may be needed to avoid straining the fiscal situation in light of the anticipated structural changes. The alternative scenarios are designed to illustrate several policy options available to the government to address the deterioration of the fiscal situation that occurs under the baseline scenario and to ensure that the principles of the Basic Law are adhered to. Effectively, the alternative scenarios reflect some of the options already being considered by the authorities to address the potential fiscal stresses.

B. Structure of Hong Kong SAR's Public Finances

6. **Fiscal policy in Hong Kong SAR has aimed at maintaining a small government while fostering a competitive private sector.** Underlying fiscal policy has been four broad principles: (i) maintain a simple tax system with stable and low tax rates (Box I.2); (ii) keep real government expenditure increases in line with real GDP growth; (iii) provide funding for core infrastructure projects; and (iv) provide an adequate level of fiscal reserves for contingencies.

7. **Guided by these principles, the following fiscal structure has emerged:**

- Overall expenditure has generally grown in line with GDP growth (Chart I.1).
- Education (19 percent) and health (12 percent) are the major areas of public expenditure.
- Welfare spending has nearly doubled over the past decade, and now accounts for 10 percent of public expenditure, reflecting rising cash and housing assistance to the elderly, Mainland immigrants, and the unemployed.
- The tax burden is low (Box I.2)—about 9 percent of GDP.
- The tax base is narrow (Box I.2). Income taxes account for about 35 percent of all revenue, with the majority of the working population outside the tax net. There are no general consumption taxes nor any duty on imports.
- Nontax sources account for about half of consolidated revenue, mostly proceeds from land sales and investment income.
- The budget has generally been in surplus with accumulated fiscal reserves at 35 percent of GDP.

C. Factors Affecting Long-Term Fiscal Development

8. **Over the next two decades, a confluence of structural changes could strain Hong Kong SAR'S public finances.** This section discusses these changes and their implications.

9. **Like other advanced economies, Hong Kong SAR faces the prospect of an aging population over the next several decades (Chart I.2).** Official projections² indicate that population growth is projected to slow to about a 1 percent average annual rate between 2000 and 2020, from about a 2 percent rate between 1977 and 1999. The overall dependency rate—the ratio of the dependent population under age 15 and over age 64 to the working age population—is projected to start rising within a decade. The acceleration of the elderly dependency rate will coincide with a decline in the youth population. One offset to the aging trend is a steady immigration flow from the Mainland. Over 50,000 mostly young immigrants arrived annually from 1996 to 1999, and future migration from the Mainland is estimated at just under 55,000 annually.³ Immigration is, however, not expected to fully offset the aging of the population.

10. **The aging of the population will accelerate public spending, especially on health and education:**⁴

- Public health spending has grown rapidly since the late 1980s in part because of the demographic trends, and is now the third largest expenditure item, financing about half the economy-wide health care expenditure of 4.6 percent of GDP in FY 1996/97.⁵ Despite the existence of private health care services, the more expensive inpatient care services—with the elderly consuming a large share of hospital

Breakdown of Public Expenditure			
	1987/88	1990/91	1999/00
(In percent of Total Public Expenditure)			
Social Spending	32	33	41
Education	17	17	19
Health	9	10	12
Social Welfare	6	6	10
Community & External Affairs	7	7	4
Economic	6	6	5
Environment and Food	1	2	5
Housing	13	13	17
Infrastructure	14	13	9
Security	15	14	10
Support	13	13	11

services—are largely government financed. Subsidies are quite extensive as user fees have not risen in line with costs. The government finances 97 percent of inpatient cost

²Hong Kong Population Projections: 2000–29, Hong Kong Census and Statistics Department.

³This estimate accords with a mutual agreement between Hong Kong SAR and the Mainland that took effect in 1995, which places a daily quota of 150 arrivals.

⁴Aging of the population also affects welfare spending, but in Hong Kong SAR income support for the elderly is not expected to rise sharply as it is mostly means-tested.

⁵After education, housing is the second largest public spending item. Although housing is integral to the government's social policy agenda, it is not included in social spending in this paper. For details on housing policy, see Dubravko Mihaljek, "1998 People's Republic of China—Hong Kong Special Administrative Region—Recent Economic Developments," IMF Staff Country Report No. 98/41.

and 83 percent of outpatient expenses in public health care facilities. In total, user fees paid by patients finance less than 5 percent of total public health expenditures. On current population trends and industry structure, public health spending is projected to double to 4 percent of GDP by 2016 and may account for up to 21–23 percent of the government's total budget.⁶

- To address the issue of rising health care expenditure, the Government has proposed a host of specific reform initiatives to maintain and improve the long term financial sustainability of the health care system: cost containment measures, revamping of the fees structure and the introduction of an individual medical savings account.⁷
- Education spending is the government's single largest spending item, accounting for about 20 percent of total public expenditure. The government has launched several initiatives since 1997 to improve the quality and scope of education—reflecting the need to remain competitive and narrow the income gap among the skilled and unskilled workers that widened sharply during the Asian crisis.⁸

11. **On the revenue side, there is concern that the tax base is too narrow.** Moreover, some taxes, such as stamp duties, could be eroded due to competition from other financial centers, while certain nontax revenue sources, like land sales, increase more sluggishly than in the past.

- As discussed in Box I.2, Hong Kong SAR's tax base is very narrow. Moreover, over the last five years, salary and profit tax revenues have been declining as a fraction of GDP, though part of the decline was due to the tax relief measures introduced in FY 1998 and FY 1999. In the coming years, it is unlikely that the profit base will rise sharply given the prospects of increased competition in the service-based industries, and with extensive tax allowances for salaried workers, salary tax base will not expand markedly.
- Stamp duties, which have been a key revenue item since the early 1980s, could erode in the future. Increased competition among regional financial centers may force the Hong Kong SAR government to reduce stamp duties (many regional stock exchanges have eliminated such duties).

⁶The consultancy report—"Improving Hong Kong's Health Care System: Why and For Whom?" Harvard Consultancy Report, 1999, Health and Welfare Bureau, Hong Kong SAR prepared by the government also projected a similar figure.

⁷These reform measures were released in the Consultation Document on Health Care Reform on December 2000.

⁸Among these initiatives are: formulating a five-year strategy to promote the use of information technology in schools; building additional schools to raise the percentage of students in whole-day primary schools; introduce a comprehensive school curriculum reform; and enhance support for teacher training. At the tertiary level, efforts are being undertaken to substantially expand education opportunities at the sub-degree level, improve innovation and promote Hong Kong SAR as regional education center.

- The real-estate boom from 1990 to 1997 created an earnings windfall, and in the subsequent crash, land revenues plummeted—from 13 percent of total revenue in 1996 to 9 percent of total revenue in 1998. Most observers regard the pre-Asian crisis run-up in property prices as a speculative bubble, and expect more stable prices in the future.⁹ Thus, the share of land-related revenue could fall in the coming years.

D. Long-Term Baseline Fiscal Projection

12. This section describes a hypothetical simulation exercise—based on unchanged policies—to assess the potential impact of population aging in the absence of additional tax revenue measures or/and expenditure cutting efforts on expenditure and revenue and the fiscal balance over the long term.¹⁰

13. Hong Kong SAR’s consolidated budget consists of the General Revenue Account (GRA)—the government’s main budget—and a set of Funds. Among the largest of these Funds is the Capital Works Reserve Fund, which finances public works program, land acquisitions, and receives income from land transactions. The remaining statutory funds are: the Loan Fund, the Disaster Relief Fund, the Civil Service Pension Reserve Fund, the Capital Investment Fund, the Innovation and Technology Fund, and the Land Fund.¹¹ The fiscal reserves are the cumulative total of all previous consolidated budget balances. Fiscal reserves are held with the Exchange Fund, with investment income proportionately divided among the GRA and Funds based on their respective asset holdings.

14. The assumptions used in simulating GRA revenue and expenditure items were:

- *Labor force:* Official population projections and historical averages of labor force participation rates between 1984 and 1998 were used to generate annual estimates of the labor force by age groups.
- *GDP growth:* Most recent medium-term forecast (SM/01/13, 1/16/01)) for real GDP

Assumptions Underlying Fiscal Model		
Variables	Average 1984-1998	Baseline Scenario
(In percent)		
Productivity growth (output per labor)	2.8	3.4
Inflation rate	6.1	3.0
Real rate earned on Exchange Fund	8.3	5.0
Real rate charged on borrowings	—	4.0
Labor force participation rates by age		
15 to 19	25.3	25.3
20 to 29	81.4	81.4
30 to 39	76.1	76.1
40 to 49	75.8	75.8
50 to 59	61.1	61.1
60 and over	19.3	19.3
Land Premium Revenue		
Real rate of increase		6.0
Real growth rate of HKSE	11.9	10.0
Real growth rate of Property Price Index	6.10	6.0
WEO forecasts for 2000 and 2001		
Real GDP growth	2000 9.5	9.5
Inflation	2001 -3.5	-3.5
Real GDP growth	2001 4.5	4.5
Inflation	1.0	1.0

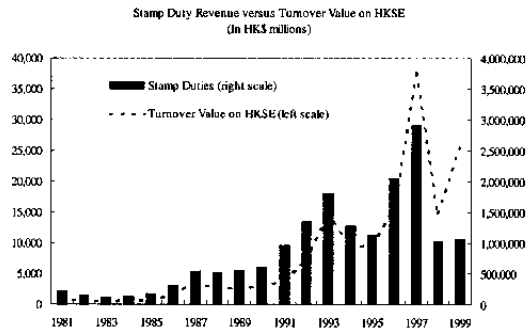
⁹The government launched a new land policy in 1998 aimed at helping stabilize prices.

¹⁰It should be noted, however, that the exercise was conducted on a partial equilibrium basis and did not take into account the economy-wide impact of the structural changes on aggregate savings, capital accumulation, participation rate, and factor productivity, and the subsequent feedback effects of these variables on the budget.

¹¹The consolidated budget records expenditure by the statutory funds and the GRA. A broader measure of public expenditure would include quasi-governmental bodies such as the Housing Authority and trading funds. Expenditure by these bodies is only included to the extent of their subventions from the GRA. Expenditures by institutions where the government has an equity stake (e.g., the Airport Authority) are not included.

growth are used till 2005. Real GDP growth beyond 2005 was kept at the potential rate of 4 percent.

- *Inflation:* Most recent medium-term forecast (SM/01/13, 1/16/01) for inflation was used till 2005. Thereafter, annual inflation rate is expected to converge to trading-partner inflation of 3 percent.
- *Stamp duties for property transactions:* Total property market turnover value was forecast using historical data on the total annual value of turnover (sum of value assignments and value agreements for sale and purchase of land) and the property index for domestic premises. For each year, an “implicit” quantity index (total turnover value/price index) was constructed to generate a proxy for quantity turnover. In the baseline scenario, property volume turnover was fixed to its 1993 value (fiscally neutral base year) while the real property price index is assumed to grow at 6 percent, its average growth rate between 1984 and 1999.¹² The real values were converted to nominal terms using the projected GDP deflator.
- *Stamp duties for stock market transactions:* Equity prices were assumed to grow at a fixed “real” rate. In the baseline scenario, the real rate was set equal to 10 percent, about 2 percentage points below its average real growth rate between 1984 and 1998. “Implicit” turnover volume was fixed at its 1993 value throughout the projection period. The real values were subsequently converted to nominal terms using the projected GDP deflator.
- *Land premium:* The price index for domestic premises was taken as proxy for price movements of government land sales, and the volume of land sales fixed at its average between 1984 and 1999 rather than its 1993 value—a value that was by historical standards unusually high.
- *Investment income:* Projected real investment income was determined by multiplying the real fund balance at the end of the previous fiscal period by the assumed real rate of return on all assets of the Exchange Fund. In the baseline scenario, the real rate earned on these was set at 5 percent, around 3½ percent below the historical average between 1984 and 1998. The real values were subsequently converted to nominal terms using the projected GDP deflator.



¹²The projected stamp duties are highly sensitive to the assumptions about whether volume turnover rises or not. The historical data shows large swings and no discernible pattern in volume turnover.

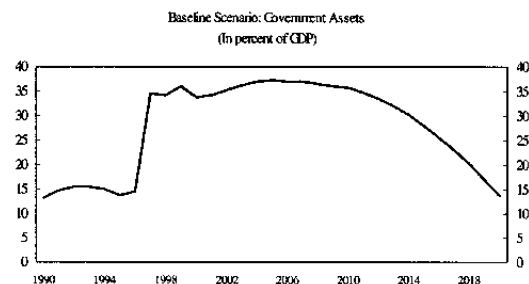
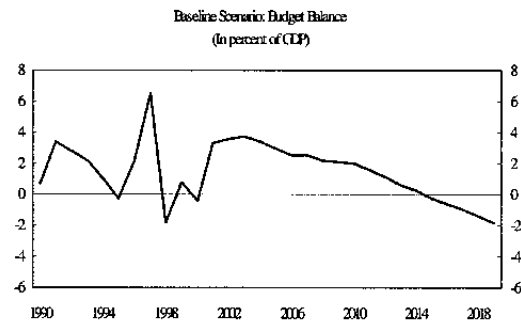
15. **Three different methods were used to project the revenue and expenditure items in the GRA depending on the availability of data and explanatory variables.**¹³ For most variables (Tables I.1 and I.2) projections were done based on the historical behavior of a variable of interest as approximated by a linear regression model (see Appendix). For some variables, the historical behavior was mimicked using a first or second order Taylor expansion of the fiscal variable around a cyclically neutral value. Lastly, some variables were projected as a constant proportion of GDP. This approach was used when adequate data on likely explanatory variables were not available or regression results indicated structural breaks.

16. **For the statutory Funds, a less elaborate method was used to derive projections for their annual balance:**

- All the Funds other than the Capital Works Reserve Fund were assumed to achieve a balanced budget every fiscal year throughout the projection period. In addition, each Fund was assumed to transfer all investment income that it earned on its asset holdings with the Exchange Fund to the GRA.
- The Capital Works Reserve Fund was assumed to achieve a zero balance every fiscal year throughout the projection period, excluding interest income and land premiums earned. While interest income was transferred to the GRA, land premium was transferred only to the extent necessary to maintain a non-negative balance in the GRA. Otherwise, land premium was added to the Capital Works asset holdings.

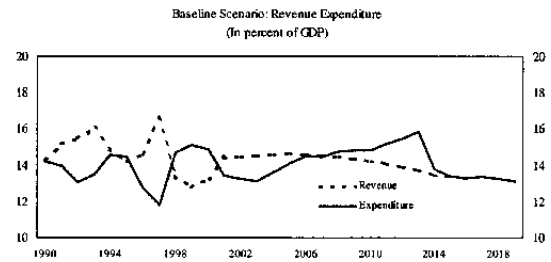
E. Policy Analysis

17. **The baseline projection shows, in an unconstrained fiscal spending scenario and in the absence of additional tax measures, Hong Kong SAR could experience a deterioration in its public finances.** The consolidated budget balance (reflecting the net budget position of the GRA and all funds) is projected to turn negative around FY 2015 (equivalent to a negative 0.3 percent of GDP), largely because uncontrolled expenditure growth outpaces revenue growth over the projection period. At that point, net government assets would amount to about 28 percent of GDP. Subsequent deficits would be financed by running down the government's assets. By FY 2020, the deficit would have widened to 1¾ percent of GDP and assets would have declined to 13 percent of GDP. For illustrative purposes, extending the



¹³The coefficients estimated to project tax revenue (salary and corporate taxes) may be somewhat biased since they fail to take into account the effect of recent tax relief measures.

projections beyond 2020, the government's asset holdings could be depleted within about 9 years (around 2024). By then, the government would have to resort to debt financing. The rapid pace of the asset rundown reflects the large dependence of investment income to finance expenditure.



18. **While several revenue components, are expected to slow down, revenue overall is projected to grow in line with GDP.**

The slower trend growth in stamp duty and profit taxes, due to anticipated structural changes, will be offset by higher salary revenue and bets and sweeps which are projected to grow somewhat faster than their average annual growth rate in the 1990s. Overall, however, consolidated revenue grows on average in line with GDP growth over the projection period, with the revenue-to-GDP ratio roughly the same at the end of the projection period.

	1990-1999	2000-2009	2010-2020	2001-2020
Tax Revenue	3.1	7.3	3.6	5.4
Direct	3.0	8.3	3.7	6.5
Earnings and profits	2.9	8.3	3.6	6.4
Indirect	4.2	6.3	3.6	4.0
Bets and sweeps tax	4.1	7.1	4.7	6.3
Stamp duties	3.7	3.2	1.7	1.7
Nontax Revenue	6.7	3.5	0.1	0.6
Properties and investments	11.6	3.3	0.1	(1.1)
Fees and Charges	2.5	2.8	3.7	3.0
Total Revenue	3.6	6.2	3.0	4.2

19. **On the expenditure side, although some components are expected to grow slower than in the last decade, together they are expected to outpace the rise in revenue.** For example, despite the aging in the population, real expenditure on health grows slower than in the 1990s,

	1990-1999	2000-2009	2010-2020	2001-2020
Current Expenditure	7.8	6.1	5.5	5.5
Personal emoluments	3.5	3.2	3.0	2.5
Subventions	12.5	7.5	6.4	7.1
Education	6.5	4.9	4.6	4.5
Medical	26.5	3.0	3.2	3.0
Social Welfare	14.7	3.4	12.2	8.4
University & Polytechnic	12.0	6.1	3.0	5.2
Vocational Training	8.4	9.3	8.6	9.3
Total Expenditure	7.7	6.1	5.5	5.5

reflecting the substantial catch-up in public health expenditure in the 1990s. Only social welfare spending is projected to accelerate in the second half of the projection period, largely due to rising share of those out of the workforce. However, consolidated expenditure growth exceeds GDP growth by an average annual rate of 1¼ percent over the projection period. Clearly, if expenditure growth could be kept under control (in line with GDP growth) the fiscal balance would not deteriorate as projected under the baseline scenario.

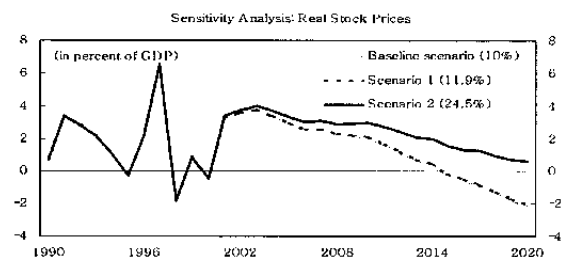
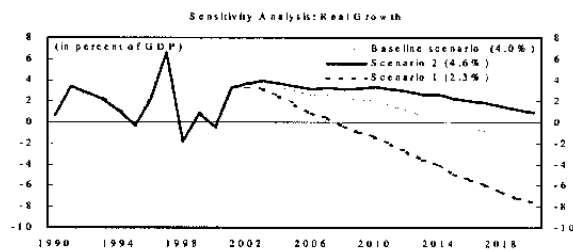
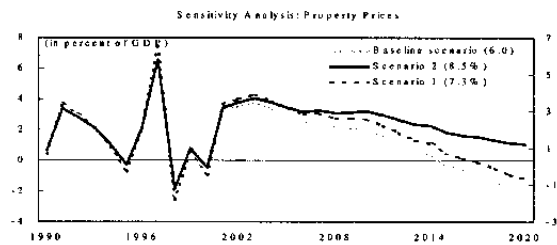
20. **Under the baseline scenario, two fiscal tenets enshrined in the Basic Law appear to be violated:** first, a sustained fiscal deficit emerges from 2015 onwards, and second, expenditure grows faster than GDP from 2004 onwards.

- Taking FY 2004 as starting point, to achieve balanced budget over the projection period so that an asset-to-GDP ratio of about 33 percent is reached in FY 2020, real total public expenditure would have to be cut by an annual average rate of 6½ percent (or an average of 1.1 percent of GDP per year).

- Assuming that all the adjustment burden fell on areas outside of social spending, then total non-social spending, including housing, would have to decline by 13 percent per year in real terms. Many of these non-social spending areas are, however, already being squeezed, and further cuts could potentially undermine the quality of public services. Hence, reforms to social spending areas, such as public health, may be needed to bring expenditure growth under control.
- While these cuts are sufficient to achieve balanced budget, they are not enough to satisfy the second tenet of the Basic Law, namely to bring expenditure growth in line with GDP. Instead, this would require cutting real expenditure by 14 percent in real terms over the projection period, equivalent to 2½ percent of GDP per year, and double the amount of expenditure cuts needed to achieve balanced budget.

21. **The baseline scenario is sensitive to the assumptions underpinning the simulations.**¹⁴ For illustrative purposes, four revenue-enhancing and one cost-cutting scenarios were examined. In all revenue-raising scenarios, while the requirement under the Basic Law of a budget balance over the projection period could be met, the second expenditure growth objective tenet remained violated since none of them entailed expenditure-cutting options. For that reason, an alternative option of allowing for greater burden sharing with the private sector to reduce health care expenditure was considered in order to achieve the expenditure growth objective.

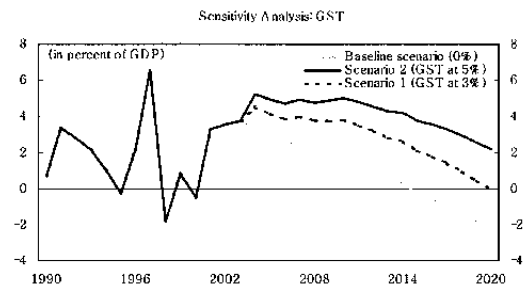
- **Property prices.** Increasing the growth rate in real property prices from the baseline rate of 6 percent to 8½ percent improves the long-term fiscal balance enough to achieve the asset target ratio of 33 percent.
- **Equity prices.** The growth rate in real equity prices would have to more than double to 24½ percent from the baseline rate of 10 percent to reach the target asset ratio, as stamp duties from stock transactions account for only 3 percent of total revenue.
- **Growth rate.** Raising the growth rate of the economy by 0.6 percent from its current baseline rate of 4 percent would be enough to achieve the target asset ratio of 33 percent. Higher productivity growth



¹⁴Participation rates were left unchanged. Also, no changes were made to the official projections of demographic developments, which are based on official estimates of fertility and mortality rates, and immigration flows.

could come from the education reforms and the Mainland's accession to the WTO, which should benefit HKSAR as trade creation is expected to exceed trade diversion.

- **Expanding the tax base.** The impact of a 3 percent and 5 percent GST was simulated for illustration.¹⁵ Both rates are low by international standards. The tax base is assumed to amount to 38 percent of GDP.¹⁶ The 3 percent rate will raise the general price level by 1.9 percent, while the 5 percent rate will increase prices by 3.2 percent on a one-off basis. It is assumed that the GST would be introduced in FY 2004/05



with $\frac{3}{4}$ of the price level impact occurring in 2004 and the remaining in 2005. The results suggest that a 3 percent GST could achieve the target asset-to-GDP ratio by 2020.

- **Greater burden sharing with private sector:** Another option would be to reduce health care expenditure by allowing for greater cost sharing of health care expenditure. This could be achieved through higher user fees, introducing means-testing and encouraging more private insurance. It is estimated that to maintain the government's share of health expenditure steady at its current share of $2\frac{1}{2}$ percent of GDP over the projection period (compared to the baseline level of about 4 percent in 2020), and just enough to keep total expenditure growing in line with trend growth, health expenditure growth would have to be cut by $2\frac{1}{2}$ percent on average and user fees would have to double to finance around 35 percent of public health expenditures from their current baseline rate of about 5 percent¹⁷

F. Conclusion

22. **The baseline projections suggest that the potential impact of demographic and other structural trends could be nontrivial.** Clearly, the results are sensitive to the underlying assumptions and do not incorporate an equilibrium response by the private sector. That said, the factors that are driving the deterioration in public finances appear largely structural. In an unchanged policy scenario, the consolidated fiscal balance is expected to deteriorate, and turn negative around 2015. To be sure, accumulated fiscal reserves of the government are significant, and the authorities could arguably allow its balance sheet to deteriorate temporarily, financed by drawing down reserves. However, prolonged deficits would not be in the long-term interests of the Hong Kong SAR economy. They would conflict

¹⁵For simulation purposes the proceeds from a GST was taken on a net basis, i.e., administrative costs were excluded from the exercise. In practice, the set-up and subsequent administrative costs will have to be taken into account to assess the net impact of the tax.

¹⁶Based on the consumption of goods and services (especially financial) that are taxable.

¹⁷User fees are assumed to differ by income group with the burden of absorbing the increase in health care costs expected to be borne by higher income groups.

with Hong Kong SAR's tradition of fiscal prudence, erode investor confidence and undermine the credibility of the currency board arrangement.

23. **Against this setting, the government has already begun to address some of these problems.** The government introduced a Civil Service Reform and an Enhanced Productivity Program aimed at controlling growth in expenditure and achieving cost efficiency gains in 1998. In addition, a Task Force on Review of Public Finances was established in 2000 to investigate the recent deterioration of the operational fiscal balance. An Advisory Committee to the Task Force has also been established to assess the merits of introducing different taxes, including a broad-based goods and service tax as means to broaden the tax base. Both bodies are expected to complete their work by the end of 2001. The government further commissioned a study in 1997 to assess Hong Kong SAR's health care system and make recommendations to improve the financing and delivery of health care. Based on this study, the government is expected to introduce comprehensive health care reforms. Furthermore, the government conducts regular departmental reviews, which have led to reforms in welfare, pensions, and education, to contain costs and improve efficiency.

Box I.1. Fiscal Constraints on the Hong Kong SAR Government

1. The provisions of the Basic Law

The **Basic Law of HKSAR**, which went into effect on July 1, 1997, requires the government to abide by the principles of:

- keeping expenditure within the limits of revenues when drawing up the budget;
- striving to achieve a fiscal balance, and avoid deficits;
- keeping the budget commensurate with the growth rate of GDP;
- taking the low tax policy previously pursued in Hong Kong SAR as reference, enact laws on its own concerning types of taxes, tax rates, tax reductions, allowances and exemptions, and other matters of taxation;
- maintaining the region's status as a free port and not imposing any tariff unless otherwise prescribed by law; and
- backing the issue of Hong Kong SAR currency by a 100 percent reserve fund.

2. The fiscal philosophy set out in previous budgets

The government of Hong Kong SAR has laid out its fiscal philosophy in previous budgets, including among them the following guidelines

- The budgetary surplus should be managed in order to maintain adequate fiscal reserves over the long term. The general guideline is to maintain reserves within plus or minus 25 percent of the M1 money supply plus 12 months' government expenditure.
- Adherence to the principle of full cost recovery in setting user fees and charges for services provided by government.
- A revenue scheme that features low tax rates, a flat tax profile, and that is drawn from only a limited number of sources.
- A ceiling on total permitted expenditure is determined under the guideline that real budgetary expenditure growth be no faster than the forecast growth of potential GDP.

3. An implicit social contract between the government and the people

The unique history and traditions of the people of Hong Kong SAR and its government suggest a number of "implicit" guidelines which will limit the ability of the government to change taxes or government programs. These include:

- Minimal government interference in the economy.
- Only the most vulnerable members of society are eligible for social welfare (which is heavily means-tested). In return for this modest social safety net, income taxes are kept low, and are only levied on the wealthiest members of society.

Box I.2. Key Characteristics of Hong Kong SAR's Tax System

Hong Kong SAR has the lowest level of taxation of any advanced economy. HKSAR's tax revenue in 1998 amounted to 9 percent of GDP compared to 16 percent for Singapore, 21 percent for Korea, and 29 percent for Japan. Despite its conservative approach to taxation, Hong Kong SAR's tax system has, over the past decade or more, continued to generate sufficient revenue to finance adequately all budgetary commitments and at the same time allow a substantial build up of fiscal reserves, which are currently estimated to amount to about 35 percent of GDP. Notable features of HKSAR's tax structure are:

The tax structure is simple and the tax base is narrow. Profits are taxed at a flat rate of 16 percent on corporations and 15 percent on others. Salaries tax (with four marginal rates) is based on a sliding scale that progresses from 2 percent to 17 percent of income after the deduction of allowances. Total tax charged cannot exceed 15 percent of total taxable income before personal allowances. The current allowance is generous with more than half the workforce not subject to any income tax. Income tax is also limited to income derived from sources within HKSAR. Moreover, few taxes are levied. HKSAR has no consumption tax and as a free port, has no trade tax such as duties on imports. Interest and capital gains are also largely exempt from tax and dividends are not taxed.

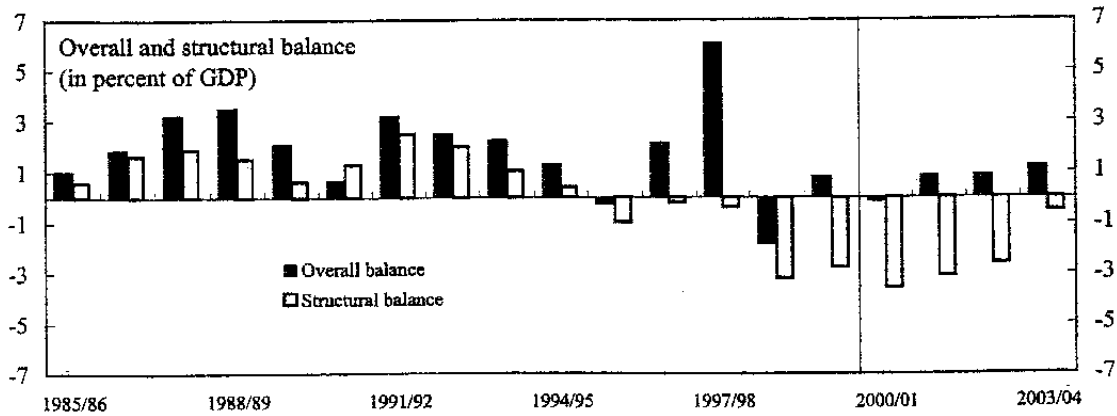
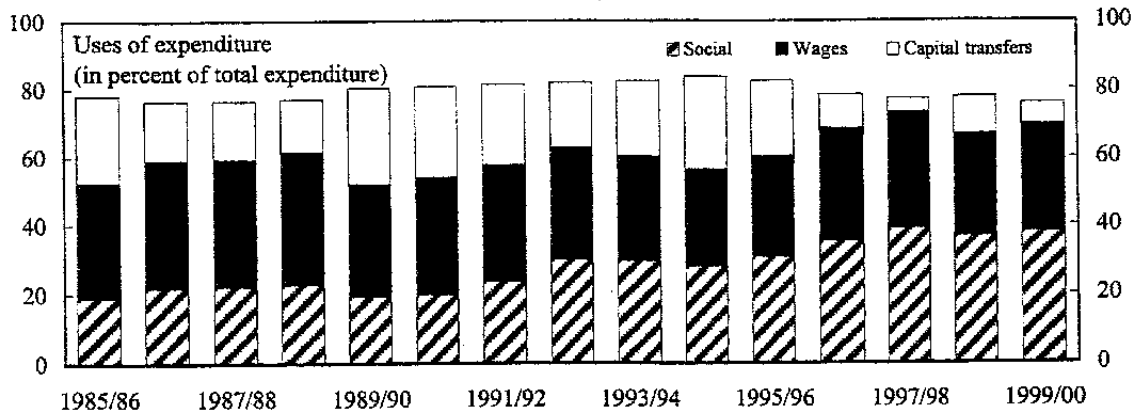
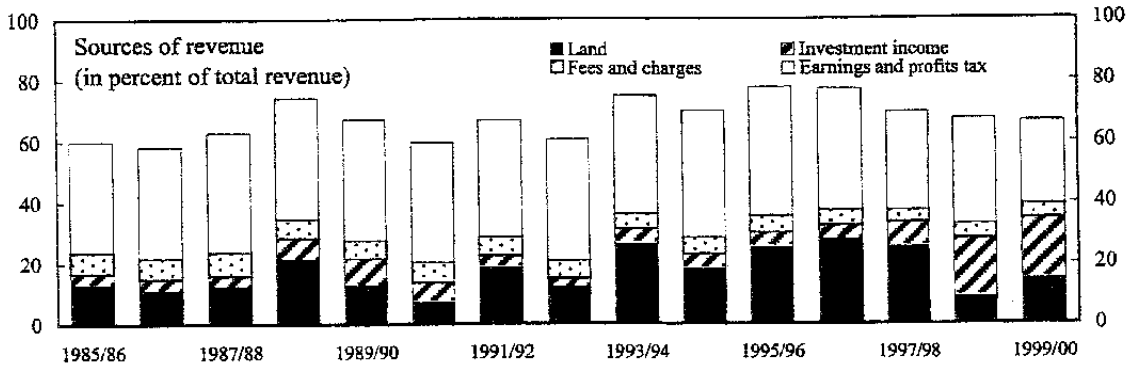
The revenue structure relies largely on direct tax and nontax revenue. The main source of revenue is corporate and household income tax, accounting on average for 43 percent of total revenue between 1990 and 1998. The second largest source are stamp duties, related to stock and property transactions. Finally, the third largest source is capital income earned on the government's asset holdings with the Exchange Fund. Overall, about one-third of total revenue in recent years is estimated to be land and property related.

	GRA Revenue Structure	
	Average	
	FY 1983-98	FY 1990-98
	(In percent of total revenue)	
Tax revenue	73.8	76.6
Direct	45.0	46.7
Salaries	14.7	15.9
Profit	26.8	27.5
Property tax	1.3	1.0
Indirect	28.8	29.8
Stamp duties	8.1	9.7
Land	5.1	6.6
Stock	2.7	2.9
Nontax revenue	26.2	23.4
Capital income	9.5	8.3
Fees and charges	6.9	6.4

HKSAR's revenue system is highly volatile. The strong reliance on income tax revenue, asset-related revenue makes HKSAR's revenue system vulnerable to cyclical downturn and asset price swings, as was evident during the Asian crisis. Indeed, revenues as shares of GDP are highly volatile. Total fiscal revenues averaged 17½ percent of GDP between FY 1983–FY 1998, with a standard deviation of 2 percent. Not surprisingly, among the components, land revenue and stamp duties are the most volatile revenue sources. Both these items are highly correlated with movements in property and stock prices, with the coefficient of correlation for both well above 0.9.

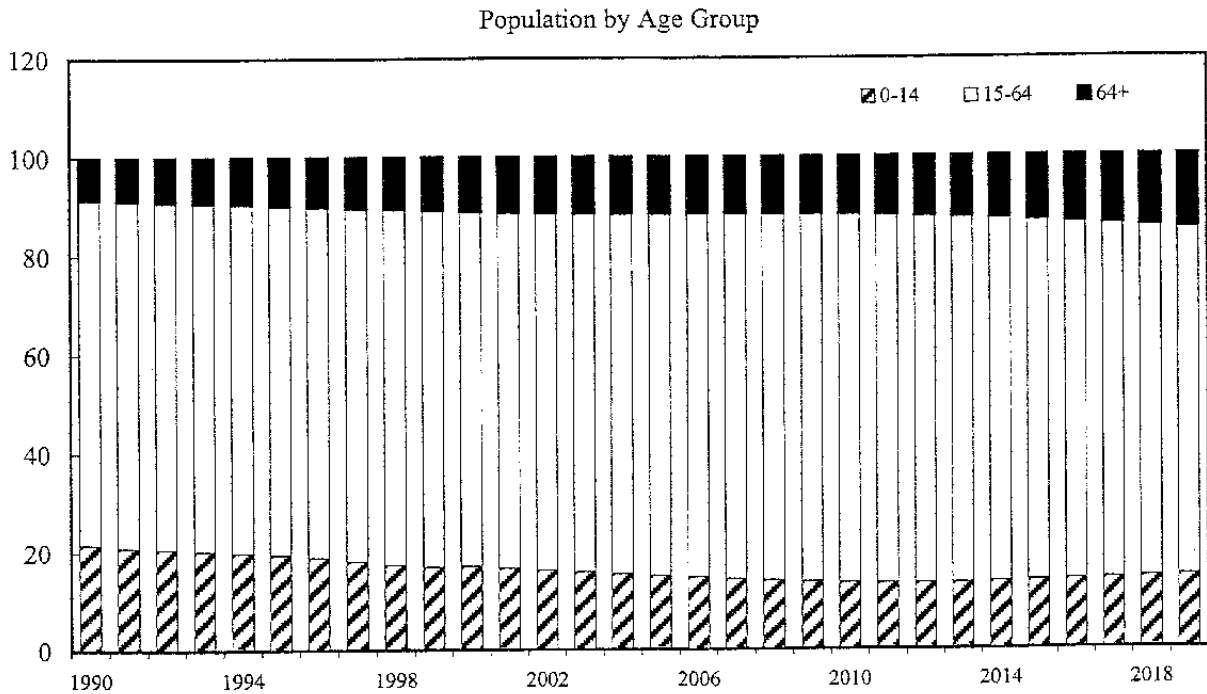
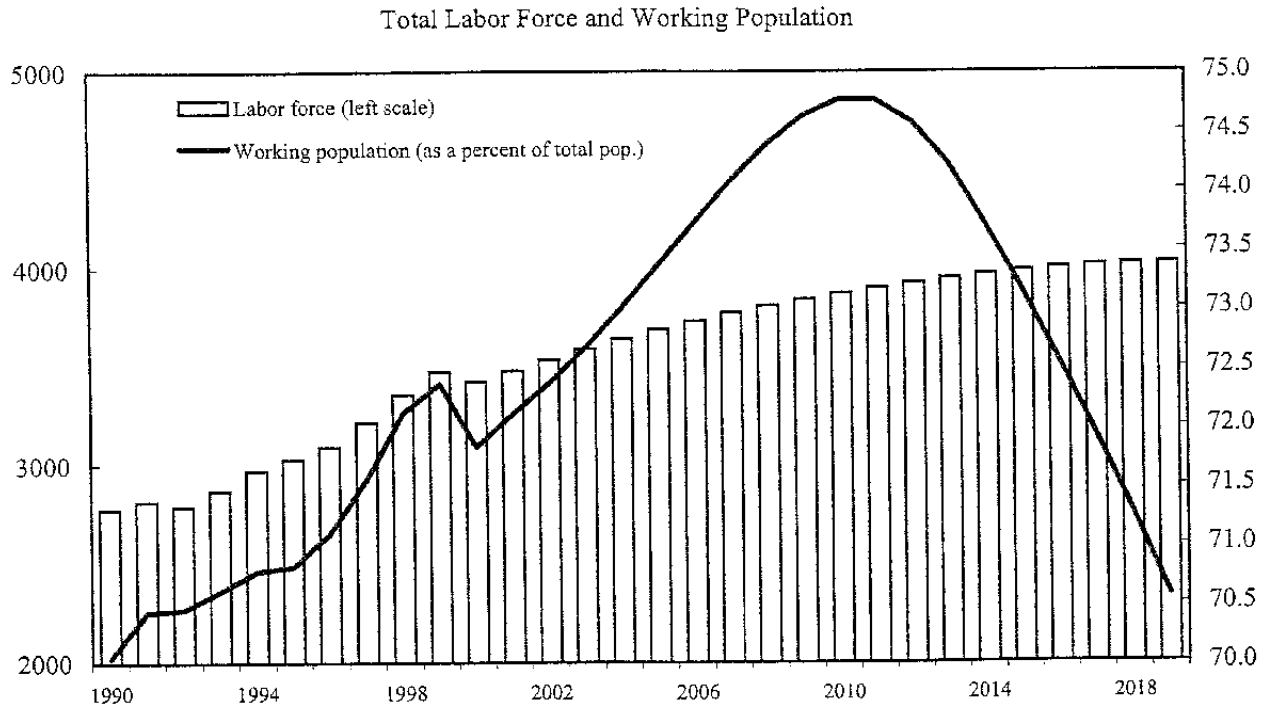
HKSAR's revenue structure is also highly procyclical. The overall tax system is highly buoyant and highly sensitive to economic fluctuations: a 1 percent increase in GDP raises total revenue by 0.96 percent while a 1 percent increase in GDP growth rate raises total revenue by 1¾ percent. Capital revenue (mostly premia from land sales) and stamp duties are particularly elastic (a 1 percent increase in GDP will cause land revenue and stamp duty to grow by more than 5 percent). The high volatility in fiscal revenues makes it that much more difficult for the Hong Kong SAR authorities to use fiscal policy as an effective countercyclical tool. Cross-country comparisons confirm that HKSAR's fiscal revenue is more volatile than economies of similar structure (small open economies such as Singapore, Korea, Denmark, Netherlands, and New Zealand). Only Singapore's revenue displays strikingly similar revenue volatility.

Chart I.1. Hong Kong SAR: Fiscal Developments, 1985/86-1999/00



Sources: Finance Bureau; and staff estimates.

Chart I.2. Hong Kong SAR: Population and Labor Force, 1990-2020



Source: Hong Kong Population Projections: 1997-2029, Census and Statistics Department, Hong Kong SAR.

Table I.1. Revenue Model

Revenue Category	Methodology	LHS Variables									
		Constant	Time	GDP	GDP Per Capita	Population	Lag (LHS)	Value of HKSE Turnover	Value of Property Market Index	HKSE Index	Property Price Index
Direct taxes											
Property taxes	(2)	✓	✓								✓
Salaries tax	(2)	✓	✓	✓ (calendar year)							
Profits tax	(2)	✓		✓ (calendar year)							
Personal assessment	(1)									✓	
Estate tax	(3-S)	✓	✓								
Duties	(3-F)		✓			✓					
General rules	(1)										
Bets and sweeps	(3-F)		✓		✓ (fiscal year)						
Hotel accommodation tax	(1)										
Stamp duties											
Land transactions	(2)	✓	✓					✓			
Stock transactions	(2)	✓	✓							✓	
Leases	(2)	✓	✓	✓ (fiscal year)							
Air passengers departure tax (*)	(2)	✓	✓								
Motor vehicle tax	(1)										
Royalties and concessions	(1)		✓								
Fines and penalties	(3-F)				✓ (fiscal year)		✓				
Properties, investment, and interest (**)	(1)										
Of which: interest	(***)										
Reimbursements and contributions	(3-S)		✓		✓ (fiscal year)	✓	✓				
Utilities	(1)										
Fees and charges	(3-S)		✓	✓ (fiscal year)							

3-F First order. Taylor approximation.

3-S Second order. Taylor approximation.

* Dependent variable is ratio to GDP.

** Portion excluding interest.

*** Real interest income is the (real) balance of general revenue account for previous period times the real interest rate.

Table I.2. Expenditure Model

Revenue category	Methodology	LHS Variables								
		Constant	Time	GDP	GDP Per Capita	Population	Lag (Population)	Lag (HSE)	Pop Not in Labor Force	Pop 5-14
Personal emoluments	(3-F)						✓	✓		
Personnel-related expenses	(1)									
Departmental expenses	(1)									
Other charges	(3-F)				✓		✓			
Current account subventions: education (*)	(3-S,P)				✓ (lagged)					✓ (lagged)
Current account subventions: medical (**)	(1)					✓				
Current account subventions: social welfare	(3-S,P)						✓			✓ (lagged 1, 2, and 3 times)
Current account subventions: university and polytechnical	(2)		✓		✓	✓				
Current account subventions: vocational training council (***)	(2)	✓	✓		✓					
Current account subventions: miscellaneous	(2)	✓	✓					✓ (***)		
Plant, equipment, and works (****)	(1)									
Other nonrecurrent	(1)									
Capital subventions (****)	(1)									

F: first order. Taylor approximation.

S: second order. Taylor approximation.

P: modeled with $x^t = \log(x/x(-1))$ and $y^t = \log(y/y(-1))$, i.e., percentage changes rather than levels.

* Dependent variable is per member of the population aged 5 to 14.

** Dependent variable is per capita.

*** Two lagged values of the dependent variable are included.

**** 2001/02 is mean ratio of expenditure to GDP from 1984-98, and grows at nominal GDP growth thereafter.

Regression Results¹

Revenue Category

Direct taxes

Property tax:

$$LPROP = 73.9 - 0.03*Year + 0.21 \log(\text{Property Price Index})$$

(3.22) (-2.89) (1.72)

Salaries tax:

$$LSAL = -175.6 + 0.09*Year + 0.86 \log(\text{Per Capital GDP}) - 3.34 \log(\text{Labor Force})$$

(-3.03) (-3.02) (2.79) (1.95)

Profit tax:

$$LPROF = 90.8 - 0.06*Year + 2.31 \log(\text{GDP})$$

(2.46) (-2.65) (5.85)

Estate tax:

$$LEST = (LEST_{1993} + 86.1 - 0.05*1993) + 0.26*DELHKSE - 1.13*SQDELHKSE - 86.1 + 0.05*Year$$

Indirect taxes

Duties:

$$LDUTY = (LDUTY_{1993} + 25.7 - 0.02*(1993)) - 2.26*DELPOP - 25.7 + 0.02*Year$$

Bets and sweeps:

$$LBS = (LBS_{1993} + 120.6 - 0.06*(1993)) + 1.76*DELGDPPC - 120.6 + 0.06*Year$$

Stamp duties from property transactions:

$$LLT = 75.2 - 0.04*Year + 1.16*\log(\text{Value of Property Turnover})$$

(2.76) (-2.98) (10.02)

Stamp duties from stock transaction:

$$LST = 181.1 - 0.09*Year + 0.93*\log(\text{Value of HKSE Turnover})$$

(5.06) (-5.03) (10.13)

Air passenger departure:

$$LAPDT = 173.2 - 0.09*Year$$

(4.47) (-4.64)

Fines and penalties:

$$LFP = (LFP_{1993} + 95.6 - 0.05*1993) + 0.59*DELGDPPC - 0.37*DELFP[-1] - 1.28*SQDELGDPPC + 0.92*SQDELFP[-1] - 4.61*(DELGDPPC*DELFP[-1]) - 95.6 + 0.05*Year$$

¹All variables are expressed in real values and are logged. Values in parenthesis denote t-values. *Del* indicates that the log real variable has been time-detrended and then differenced against the 1993 fiscal neutral base year. DEL variable can be understood as the cyclical deviation of the variable of interest from its 1993 neutral base year. *SQ*—used where variables are modeled based on a second order Taylor approximation—is the square of the deviation from the base year (or the variance).

Reimbursement and contributions:

$$\text{LRECO} = (\text{LRECO}_{1993} + 69.5 - 0.04 * \text{Year}) - 3.90 * \text{DELGDP} - 15.76 * \text{SQDELGDP} - 69.5 + 0.04 * \text{Year}$$

Fees and charges:

$$\text{LFC} = (\text{LFC}_{1993} + 56.6 - 0.03 * \text{Year}) + 1.42 * \text{DELGDP} + 3.43 * \text{SQDELGDP} - 56.6 + 0.03 * \text{Year}$$

Expenditure Category²

Personal emoluments:

$$\text{LPE} = (\text{LPE}_{1993} + 65.7 - 0.04 * \text{Year}) + 0.54 * \text{DELPE}[-1] + 1.191 * \text{DELPOP}[-1] - 65.7 + 0.04 * \text{Year}$$

Other charges:

$$\text{LOC} = (\text{LOC}_{1993} + 118.6 - 0.064 * \text{Year}) - 0.75 * \text{DELGDPPC} + 1.09 * \text{DELPOP}[-1] - 118.6 + 0.06 * \text{Year}$$

Subvention education:

$$\text{LSED} = (\text{LSED}_{1993} + 109.0 - 0.06 * \text{Year}) - 0.96 * \text{DELGDP}[-1] - 3.76 * \text{SQDELGDP}[-1] - 109.0 + 0.06 * \text{Year}$$

Subvention medical (per capita medical expenditures)³:

$$\begin{aligned} \text{LSMED} = & -60.0 + 0.03 * \text{Year} - 146.61 * \text{Dum9091} - 84.3 * \text{DUM92} + \text{Y92} + \text{Y9001} \\ & (-5.17) \quad (5.67) \quad (-21.02) \quad (-5.69) \quad (5.78) \quad (21.03) \end{aligned}$$

Subvention welfare spending (expressed in annual percentage changes or log differences):

$$\begin{aligned} \text{LSWS_pch} = & \text{LSWS_pch}_{1993} + 2.42 * \text{DELNILF}[-1] + 7.01 * \text{DELNILF}[-2] + 7.49 * \text{DELNILF}[-3] \\ & + 199.4 * \text{SQDELNILF}[-1] - 166.8 * \text{SQDELNILF}[-2] - 42.8 * \text{SQDELNILF}[-3] \\ & + 75.4 * \text{DELNILF}[-1] * \text{DELNILF}[-2] - 90.4 * \text{DELNILF}[-1] * \text{DELNILF}[-3] - 338.5 * \text{DELNILF}[-2] * \text{DELNILF}[-3] \end{aligned}$$

Subvention vocational training:

$$\begin{aligned} \text{LSVT} = & -94.8 + 0.04 * \text{Year} + 1.05 * \text{LGDPPC} \\ & (-2.49) \quad (1.99) \quad (1.92) \end{aligned}$$

Subvention miscellaneous:

$$\begin{aligned} \text{LSM} = & -106.2 + 0.06 * \text{Year} + 0.66 * \text{LSM}[-1] - 0.48 * \text{LSM}[-2] \\ & (-2.02) \quad (2.04) \quad (2.41) \quad (-1.52) \end{aligned}$$

²In the model, medical subvention per capita grows in line with population growth.

II. HOW HONG KONG SAR BANKS SURVIVED THE ASIAN CRISIS¹

A. Introduction

1. **Banking sector problems were a common thread among the crisis countries in Asia.** Weaknesses in the financial sector were one of the main factors leading to the crisis, and were exacerbated by the ensuing economic disruption and output declines. Since 1997, Hong Kong SAR banks were hit by a series of negative shocks—major speculative attacks on the currency and financial markets, interest rate hikes, large capital outflows, sharp asset price declines, and output contraction. However, the deterioration of bank portfolios was less pronounced than in other Asian countries, where full-blown banking crises developed. The asset quality and profitability of Hong Kong SAR banks remained strong, even compared to Singapore and Taiwan Province of China banks, which were less affected by the crisis.

2. **This paper examines the factors that contributed to the stability of the banking system in Hong Kong SAR.** Sound banking and prudent macroeconomic policies differentiated Hong Kong SAR from other countries in the region. The main distinguishing features were low corporate leverage; strong legal system and banking regulations; prudent bank management; lack of government influence over lending decisions; relatively good accounting standards and disclosure requirements; competent supervision; and a stable exchange rate. In addition, Hong Kong SAR banks had already prepared for the transfer of sovereignty to the Mainland in 1997 by increasing their liquidity. The confluence of these factors created an environment in which financial institutions had the incentive to avoid excessive risk-taking, evaluate credit prospects impartially, and maintain high liquidity and capital ratios, which helped in limiting the impact of the crisis on Hong Kong SAR banks.

B. Pre-Crisis Similarities and Post-Crisis Divergence

3. **Based on standard macro indicators, Hong Kong SAR did not differ significantly from the other Asian countries prior to the crisis.** It had relatively strong reserve position, and external and fiscal accounts; however, it had experienced rapid credit growth, significant real exchange rate appreciation, and an asset price bubble (Table II.1)². The increase in property prices in Hong Kong SAR during the pre-crisis period of rapid

¹This chapter was prepared by Dora Iakova (ext. 35365).

²The empirical literature on early warning indicators of banking crisis is still in its early stages, however, there is an emerging consensus on a core set of variables that can signal buildup of vulnerabilities. Macro indicators with significant predictive power include real exchange rate appreciation, high credit growth, large ratio of broad money to reserves, asset prices boom, and large and persistent current account deficits. Bank level indicators include declining profitability, increase in the sectoral concentration of loans, and a rise in net foreign borrowing. See Demirguç-Kunt and Detragiache (1998, 1999); Kaminsky (1999); Hilbers, Lei, and Zacho (2000); Hardy and Pazarbasioglu (1998) and references therein.

economic growth was one of the fastest in the world. Residential prices in 1997 were four times higher than in the early 1990s. According to a study by Duenwald et al. (2000), a property price bubble of some 45 percent had developed by mid-1997. The run up in stock prices was also faster than in the rest of the countries—stock prices in Hong Kong SAR have doubled between 1995 and mid-1997.

4. **Bank-level indicators also gave mixed signals before the crisis.** Returns on assets in most countries were relatively strong, although differences in accounting standards make cross-country comparison difficult. However, there was a rise in foreign borrowing across all countries, and bank exposure

to the booming asset markets increased. Hong Kong SAR bank loans to the property sector, at 50 percent of domestic loans, were by far the highest in the group. Indirect exposure was even larger than 50 percent, since

Bank Profitability: Return on Assets

	1992-95	1996	1997	1998	1999
Hong Kong SAR	2.27	1.90	1.98	1.08	1.70
Indonesia	0.63	1.08	-0.01	-18.27	-11.67
Korea	0.56	0.28	-0.38	-2.92	-0.69
Malaysia	1.09	1.31	0.47	-0.36	0.86
Philippines	2.72	2.08	1.28	0.87	0.34
Singapore	1.42	1.33	1.15	0.84	1.45
Taiwan Province of China	0.64	0.92	0.86	0.98	0.79
Thailand	2.28	1.45	-1.16	-5.42	-5.25

Source: Fitch IBFA Bankscope.

property is the most common collateral for all types of loans. Equity was also accepted as collateral in most countries, making collateral valuations dependent on the level of the stock market as well.

5. **The post-crisis deterioration of bank portfolios in Hong Kong SAR was relatively less pronounced, despite an asset market collapse and a prolonged recession.** While there is an overall positive relationship between the depth of the recession and bank performance measures (Table II.2), Hong Kong SAR is a clear outlier. Despite an acute recession and deep declines in asset prices, Hong Kong SAR banks stand out as the best performers in the group, with strong profits and reasonably good asset quality; especially when compared to Taiwan Province of China³ and Singapore—both of which were less affected by the crisis, had good macroeconomic and banking fundamentals, and registered continued strong growth. In contrast, Indonesia, Thailand, Korea, and Malaysia experienced a full-blown financial crisis with sharp increase in nonperforming loans and negative returns. Government interventions were necessary to revive the financial systems.

C. Surviving the Crisis: Good Policies, Good Banking, or Good Luck?

6. **How Hong Kong SAR banks were able to survive the crisis relatively unscathed remains puzzling.** Property price adjustments of similar magnitude have led to serious banking crisis in Japan, the Nordic countries, and the United States in the last two decades. Banks also underwent substantial balance sheet adjustments as capital outflows from the

³However, by late 2000, the rise in NPLs in Taiwan Province of China's banking sector attracted market concerns.

Hong Kong SAR banking sector amounted to 35 percent of GDP in 1998.⁴ Furthermore, Hong Kong SAR banks also faced the failure of GITIC, a large investment trust company in the Mainland, at the end of 1998. This section argues that conservative banking practices, sound macroeconomic policies, and generally favorable external environment were crucial factors in the survival of Hong Kong SAR banks. The structure of the banking sector, characterized by large foreign ownership and dominance of internationally diversified banks, also helped (see Box II.1 for general description of the banking system).

Good Policies

7. Good macroeconomic policies were important in safeguarding the banking sector in Hong Kong SAR. In contrast to other countries with previously fixed exchange regimes, strong reserve position and a fiscal surplus allowed Hong Kong SAR to defend its currency under significant speculative pressures. The collapse of the currencies in the region (Table II.2) made impossible the repayment of their large foreign-denominated debts and led to a sudden deterioration in bank portfolios. The historical credibility of the currency board in Hong Kong SAR had led to the virtual equalization of domestic and U.S. interest rates, so most domestic loans had been extended in local currency and there was little foreign currency mismatch at a bank level (Table II.3). That underpinned public confidence in the banking system in the period of exchange rate pressures.

8. The authorities' timely actions during the crisis helped contain the damage to banks' balance sheets.

- Through a controversial intervention in the stock market, speculation was discouraged and interest rates came down fairly quickly.
- In June 1998, the Hong Kong SAR government announced that local corporations will be exempt from paying profits tax on interest income derived from HK\$ deposits, which induced firms to repatriate offshore deposits, partially offsetting the capital outflow.
- The HKMA introduced a number of technical reforms to strengthen the currency board system and minimize its susceptibility to speculative attacks in 1998. The

⁴Source: HKMA, Analysis of 1998 Balance of Payment Statistics. The total outflow from the banking system in 1998 was HK\$1,191 billion (94 percent of GDP), however more than half of it was accounted for by a reduction in the round tripping of Euroyen loans by Japanese banks. Another portion of the outflow was due to the withdrawal of local placements by international banks related to the repatriation of offshore HK\$ deposits by local corporations following changes in tax rules. Both events had no significant effect on liquidity in the local markets. 1998 was the first year for which balance of payment statistics for Hong Kong SAR were compiled.

introduction of a discount window facility improved liquidity management in the banking system and reduced interest rate volatility in the interbank market. New regulations were put in place to limit manipulation of the stock market (see SM/99/04, 1/8/99, for details).

9. **Hong Kong SAR has a modern regulatory system, strong bankruptcy law, and efficient enforcement procedures.** The Hong Kong SAR legal system for debt recovery is tailored after the English legal

system which provides strong protection of creditor rights. In cross-country comparisons of legal systems, Hong Kong SAR is rated highly in terms of efficiency of the judicial system, the rule of law, and lack of corruption. Foreclosure

procedures in Hong Kong SAR are very efficient. In most cases, foreclosures are completed within 3 to 6 months. That has contributed to the relatively low default rates on collateralized loans (default rate on mortgages has remained under 1 percent). The favorable operating environment, based on market principles and the rule of law, has allowed banks to build high quality portfolios which increased their resilience to shocks.

	Rule of Law					
	Average Score	Efficiency of the Judicial System	Rule of Law	Corruption	Risk of Expropriation	Risk of Contract Repudiation
United States	9.5	10.0	10.0	8.6	10.0	9.0
Singapore	9.0	10.0	8.6	8.2	9.3	8.9
Hong Kong SAR	8.8	10.0	8.2	8.5	8.3	8.8
Malaysia	7.7	9.0	6.8	7.4	8.0	7.4
Thailand	5.9	3.3	6.3	5.2	7.4	7.6
Indonesia	4.4	2.5	4.0	2.2	7.2	6.1
Philippines	4.1	4.8	2.7	2.9	5.2	4.8

Source: La Porta et al. (1998).

The scores are on a scale of 1 to 10. The maximum score is 10.

10. **Prudential regulations and accounting standards in Hong Kong SAR have been continuously upgraded.** A serious banking crisis in the mid-1980s prompted the authorities to amend the Bank Ordinance and increase the powers of bank supervisors in 1986. Further revisions were introduced after one bank (BCCI) failed, and a series of bank runs occurred in 1991. HKMA has been entrusted with the supervisory power since its establishment in the early 1990s. Its staff consists of highly qualified professionals, often with extensive international experience.⁵ Data provision for supervisory purposes is of generally high quality and frequency (Box II.2). Given the high concentration of loans to the property sector, the monetary authorities have suggested guidelines according to which the loan-to-value ratio for new loans should be 70 percent or less. All banks had adhered to these limits and that mitigated the shock from the collapse in asset prices. The average loan-to-value ratio for all outstanding mortgage loans has stayed in a comfortable 60-62 percent range since 1998.

11. **The supervisory body stepped up its oversight activities during the crisis.** On-site examinations of all local banks were performed semi-annually in 1998 and 1999, and there was continuous off-site monitoring. Due to an upgrade in reporting requirements in 1994,

⁵Hong Kong SAR authorities have been active participants in various international committees and organizations entrusted with setting the standards for financial supervision like the Basle Committee, IOSCU, and the recently established Financial Stability Forum.

banks were already providing financial data to the supervisors on a regular basis, including standard classification of loans, which made it easier for the authorities to identify problem areas and weaker banks and concentrate resources on them. Banks were encouraged to classify loans based on the soundness of the borrower, not only on the basis of interest accrual. They were also required to provision adequately for classified loans. Although there is no formal consolidated supervision across financial markets, there has been continuous exchange of information between the banking and securities market regulators. The recent establishment of the Council of Financial Regulators provides an official forum for discussion and oversight of cross-market linkages.

12. A well developed equity market partially compensated for the decline in bank lending after the crisis. That prompted the authorities to emphasize further the development of financial infrastructure since the crisis. Steps have been taken to encourage the growth of a debt market and to reduce the costs of issuing equity. Another major benefit of more diversified financial markets is likely to accrue from the higher accounting standards, better transparency, and improved corporate governance required for the development of capital markets.

Good Banking

13. Hong Kong SAR has a tradition of conservative banking practices and strong market discipline. Banks have historically been prudently run and profitable, with high returns on equity and healthy interest margins (Table II.3). Banks were well capitalized, with high liquidity ratios and good asset quality. This provided them with the necessary cushion to absorb unexpected shocks. Market discipline on the sector is strong—there are 19 publicly traded local banks and bank-holding companies, regularly followed by analysts, representing 83 percent of the assets of all local banks. Larger banks often issue bonds and subordinated debt which also subjects them to market scrutiny. The large number of small, mostly family-owned, financial institutions have been conservatively managed, and depositors can easily switch to another institution if a bank is perceived to be weak.

14. Moral hazard in the banking sector is minimal. There are no government-owned banks and no directed lending in Hong Kong SAR in contrast to all other countries in the sample. No formal safety nets exist (a deposit-insurance scheme is now being contemplated), and the perception of implicit government insurance is limited to banks which may be too big to fail. Under the currency board, the HKMA has limited powers to act as a lender of last resort. The monetary authorities have repeatedly made public statements that they will only act as a lender of last resort in cases where a bank failure threatens the stability of the system, and will not intervene to rescue individual banks. This threat was at least partially credible since the authorities allowed the failure of BCCI in 1991, although depositors eventually recovered their deposits in full. During the banking crisis of the 1980s, the government did not intervene explicitly except in the case of two banks. Large banks effectively acted as a lender of last resort and took over smaller ailing banks. In the few bank runs that occurred in the 1990s, the authorities issued statements of support, but no liquidity support was needed.

Since 1995, a law was accepted that gives priority to small depositors in cases of bank liquidation.

15. Relatively low corporate leverage was a key factor contributing to the resilience of Hong Kong SAR. Compared to Asian countries, the United Kingdom, and the United States, Hong Kong SAR has the lowest debt-to-equity ratio, the lowest total debt-to-asset ratio among the Asian countries, and one of the highest coverage ratios—measured as profits to interest expenses (Chart II.1). The financial strength of the large corporate borrowers was crucial in weathering the liquidity squeeze after the crisis—loan recalls by banks were financed largely by liquidation of overseas corporate assets. Local banks recalled loans equivalent to 18 percent of GDP and reduced lending to local corporates by 12 percent of GDP.

16. Conservative lending practices also aided in limiting the deterioration in bank portfolios. Hong Kong SAR is a highly open economy, heavily influenced by external developments, and with relatively volatile asset prices. Banks have adjusted by choosing a relatively low risk profile, high liquidity and capital ratios. Two recent studies provide qualitative ranking of regulatory strength and bank soundness across Asian countries as of 1997 (Table II.4 and Caprio, 1998). The presented indicators of bank strength, prudential norms, and corporate leverage are highly correlated with the severity of banking crises across Asian countries and can complement macroeconomic indicators in an early warning system.

Summary Measures of Bank Strength

	Total Score	Capital Position	Loan Classification	Foreign Ownership	Liquidity	Operating Environment
Singapore	16	1	6	2	5	1
Hong Kong SAR	21	3	9	1	2	2
Malaysia	41	5	9	8	8	3
Korea	45	7	9	10	11	3
Philippines	47	4	6	7	7	11
Thailand	52	7	12	12	8	6
Indonesia	52	7	8	9	12	8

The score for each category represents the relative ranking of the country among a group of twelve. Lower total score signals relatively stronger position. *Source:* Gerard Caprio (1998).

17. Reporting standards and transparency of the financial condition of banks are the best in the region. Annual financial statements are released to the public both for listed and nonlisted banks and, according to market analysts, the statements are informative about the true condition of the financial institutions since accounting norms are relatively good. Good accounting standards and disclosure rules can improve transparency, mitigating information problems inherent in financial intermediation, and enhance market discipline. While periods of euphoria and strong credit growth seem to be a cyclical phenomena in countries of all stages of economic development, cycles may be less extreme and crises can be avoided as better transparency allows investors to make informed and timely decisions.

18. **The dominant banks in Hong Kong SAR were sophisticated international financial institutions with diversified portfolios and good risk management systems.** They were in a better position to respond to an unexpected liquidity shock than the local banks in other countries in the region. The large Hong Kong SAR corporates were also diversified, with significant foreign investments, including investments in the Mainland which was little affected by the crisis. Their revenues remained relatively stable and they were able to partially offset the liquidity squeeze by issuing bonds and equity. For the more vulnerable small firms, the exposure to the banking system was limited.

Good Luck

19. **The regional exposure of Hong Kong banks to the hardest hit Asian countries was limited.** Total claims on ASEAN-4 and Korea were only 8 percent of assets in 1997. That differentiated Hong Kong SAR from Singapore banks—the other traditionally strong banking system in Asia—which had expanded significantly their regional operations just prior to the crisis, and subsequently experienced higher levels of nonperforming loans. Direct exposure of Hong Kong SAR banks to the stock market was also limited—for most banks, loans to stock brokers comprised a small share of the portfolio and had been granted on conservative loan-to-value ratios.

20. **In the run up to 1997, Hong Kong SAR banks had prepared for potential economic disruptions from the expected handover to the Mainland.** They kept relatively large share of liquid assets and followed conservative lending practices based on prudent collateral valuation. The handover went smoothly, with no negative market reaction. The excess liquidity, though, helped banks handle the unexpected shock of the Asian crisis. The close economic relations with the Mainland played an overall stabilizing role. The Mainland's exports remained robust after the turmoil, stimulating the recovery of Hong Kong SAR. Loans to the Mainland remained of relatively good quality until the failure of GITIC in late 1998, which affected only a few individual banks that had significant exposure. The total exposure of the banking sector to ITICs was small and has been further reduced in the last two years.

Hong Kong SAR Banks' Exposure to ITICs
(Percent of assets)

	All Authorized Institutions		Local Banks	
	Dec-99	Jun-00	Dec-99	Jun-00
GITIC	0.07	0.05	0.05	0.04
Other ITICs	0.51	0.43	0.48	0.43

Source: HKMA.

D. Concluding Remarks

21. **Good banking practices and regulations contributed to the resilience of the system, but a stable corporate sector, sound macro policies, and favorable external environment also played a crucial role in cushioning the shock and supporting the recovery.** There is tentative evidence that economies with the most effective regulatory and executive systems fared best during the crisis. Correlations between measures of corporate indebtedness and asset quality across countries are large and statistically significant. Conservative banking practices, lack of exposure to the most affected countries, and internal stability due to good economic policies were also important. Hong Kong SAR's recovery

was helped by strong external demand for the Mainland's exports which provided stable cash flow for many firms and enabled them to continue servicing their debts.

22. **The Asian crisis experience also revealed some weaknesses of Hong Kong SAR's banking sector.** The lending boom preceding the crisis was associated with a shift away from traditional relationship banking. Lending based on implicit guarantees has manifested itself in lending to Mainland companies. The failure of GITIC served as a wake-up call that loan decisions need to be based on the intrinsic financial strength of the borrowers. Accounting standards and disclosure requirements for borrowers, although the best in the region, are still below the best international standards (see Chapter III in this publication). As a result, banks are biased toward collateral-based lending. Many of the smaller banks lack modern risk management systems. The supervisory authorities make continued efforts to strengthen the regulatory framework and enhance the ability of banks to respond to shocks in the future. Recent initiatives include an upgrade in disclosure requirements and corporate governance rules for financial institutions, implementation of a risk-based supervisory framework, and promotion of the idea for a credit reference agency for small and medium enterprises.

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Box II.1. Structure of the Banking Sector

The banking sector plays an important economic role in Hong Kong SAR—banks are the major source of finance for both large and small domestic companies. Hong Kong SAR is also a regional center for arranging syndicated loans for companies in other countries. Bank assets of locally incorporated institutions exceeded 250 percent of GDP in 1999, and total bank assets exceed 500 percent of GDP. Foreign ownership of banking assets is greater than 50 percent. The dominant local banks are also large internationally active banks. The table below lists the total number of authorized institutions (AIs) that provide banking services.

Number of Authorized Institutions at Year-End			
	1997	1998	1999
Licensed banks	31	31	31
Restricted license banks	39	35	33
Deposit-taking companies	113	99	71
Locally incorporated AIs	183	165	135
Foreign bank branches	178	168	150
Total	361	333	285

Source: HKMA.

Licensed banks, restricted license banks (RLBs), and deposit-taking companies (DTCs) comprise the authorized banking institutions. Non-authorized institutions are representative offices of overseas banks, insurance companies, mutual funds, securities brokers, finance companies. The main difference between the licensed banks and the RLBs and DTCs is in the minimum amount and maturity term of deposits they are allowed to take. Only the licensed banks are allowed to offer savings and checking accounts. Licensed banks and RLBs have access to the Real Time Gross Settlement system. Both domestic and foreign financial institutions may apply for a license subject to minimum asset requirements.

The small local banks perform mostly traditional deposit-taking and lending activities, while the large international banks are active in the syndicated loans market and offer asset management services. Concentration of lending to the construction and residential property sectors is high (more than half of all loans - Table II.3). Exposure to the emerging markets is relatively limited. Local banks have been traditionally well capitalized and profitable. Efficiency is good as demonstrated by a cost-to-income ratio of about 37.

Despite the large number of banks, the sector is very concentrated and has a quasi-oligopolistic structure—there is one dominant local banking group and a few foreign banks holding significant share of the market (see concentration ratios in Table II.3). Some researchers have argued that the cartel on deposit rates, in existence since mid-1960s, has contributed to limiting competition (see Chan and Khoo, 1998). Indeed, interest margins in Hong Kong SAR have been fairly high by developed countries standards, which accounts for the traditionally strong profitability of banks. However, entry into the sector is free, and large deposits have not been subject to the interest rate rules. To alleviate any competition concerns, the HKMA plans to liberalize the remaining restrictions on deposit rates by mid-2001.

Box II.2. Summary of Bank Regulations

Exchange Controls: None

Reserve Requirements: None

Capital Adequacy

The minimum required risk-weighted capital-adequacy ratio is 8 percent. The HKMA may impose stricter requirements for individual banks. There is a quarterly capital-adequacy ratio reporting system.

Liquidity

AIs must maintain an average liquidity ratio (liquid assets to liquid liabilities) of not less than 25 percent in each month.

Deposit Insurance

None. The Legislative Council in 1995 adopted a rule according to which in the case of liquidation of a bank, deposits up to HK\$100,000 per person will be paid out with priority over other claimants. However, this rule does not guarantee payment and does not set a time frame for the process. A proposed deposit insurance scheme is currently under public consultation—the proposed coverage is HK\$100,000 per depositor, funded by a flat fee of 10 basis point per annum on covered deposits.

Interest Rate Controls

Caps on deposit rates existed on small deposits since 1964. In 1994 and 1995, interest rates on time deposits of more than 6 days were deregulated. The controls on rates on time deposits less than 7 days were eliminated in July 2000. The restrictions on savings and current accounts will likely be lifted in mid-2001, and that will complete the deregulation of deposit rates. The DTCs, which are only allowed to take time deposits of HK\$100,000 or more, have not been subject to the interest rate restrictions.

Lending Restrictions

- Loans to a single borrower or related parties are limited to 25 percent of capital.
- Country exposure limits: None.
- Open foreign exchange positions: The maximum aggregate overnight open position is 15 percent and the limit for a single currency is 10 percent of capital.
- Equity market exposure: AIs may not hold equities in excess of 25 percent of capital.
- Sectoral exposure limits: There are no formal limits on sectoral exposure. The only sector to which banks have significant exposure is property. The voluntary guideline for a maximum loan-to-value ratio for housing loans is 70 percent (60 percent for luxury housing).

Public Disclosure Requirements

Audited annual financial statements are disclosed publicly by all listed locally incorporated institutions (biannual nonaudited statements are also available). Biannual financial disclosure was recently introduced for nonlisted local institutions in line with the frequency of disclosure by listed local institutions and AIs incorporated outside of Hong Kong SAR. The HKMA provides detailed guidelines for the information that must be included in the statements, which are generally in line with the international best practices.

Table II.1. Early Warning Indicators of Banking Crisis

	Real Exchange Rate Appreciation 1/	Current Account (avg., 1994 -96)	M2/Reserves (1996)	Lending Boom 2/	Nonperforming Loans (1997)	Stock Index, Jun 1997 (Jan. 1995 = 100)	Property Prices, 1997 (1990 = 100)
Hong Kong SAR	31.8	-1.6	412	28	1.2	207	497
Indonesia	17.5	2.9	615	24	8.4	167	
Korea	11.1	-2.5	665	24	10	81	
Malaysia	19.9	-6.4	365	38	6	122	317
Philippines	38.9	-4.6	466	114	5.4	116	
Singapore	4.7	16.5	104	20		113	389
Taiwan Province of China	-7	2.9	575	4	4	143	
Thailand	20	-7.2	381	53	23	43	

Sources: CEIC; IFS; and staff estimates. Property prices refer to residential property prices.

1/ The percentage rate of change of the real exchange rate between the end of 1996 and the average over 1988-90.

2/ Lending boom is defined as the growth of the private credit-to-GDP ratio between 1993 and 1997.

Table II.2. Severity of the Crisis

	Real GDP Growth (1999 over 1997)	Return on Assets (1998)	Nonperforming Loans (2000) 1/	Nominal Exchange Rate, Dec. 1998 2/	Stock Index, Aug 1998 (June 1997 = 100)	Property Prices, 2000 (1997 = 100)
Indonesia	-12.7	-18.27	36	34	47	
Thailand	-6.4	-5.42	39	65	41	
Hong Kong SAR	-2.4	1.08	7	100	48	54
Malaysia	-2.1	-0.36	20	65	28	88
Philippines	2.7	0.87	23	65	42	
Korea	3.3	-2.92	23	76	42	
Singapore	5.8	0.84	12	65	45	85
Taiwan Province of China	10.2	0.98	12	85	73	

Sources: CEIC; Fitch IBCA Bankscope; IFS; and staff estimates.

1/ Percent of total loans, includes loans in asset management companies.

2/ U.S. dollars per unit of local currency, January 1997 = 100.

Table II.3. Hong Kong SAR: Performance Ratios of the Banking Sector

(In percent)

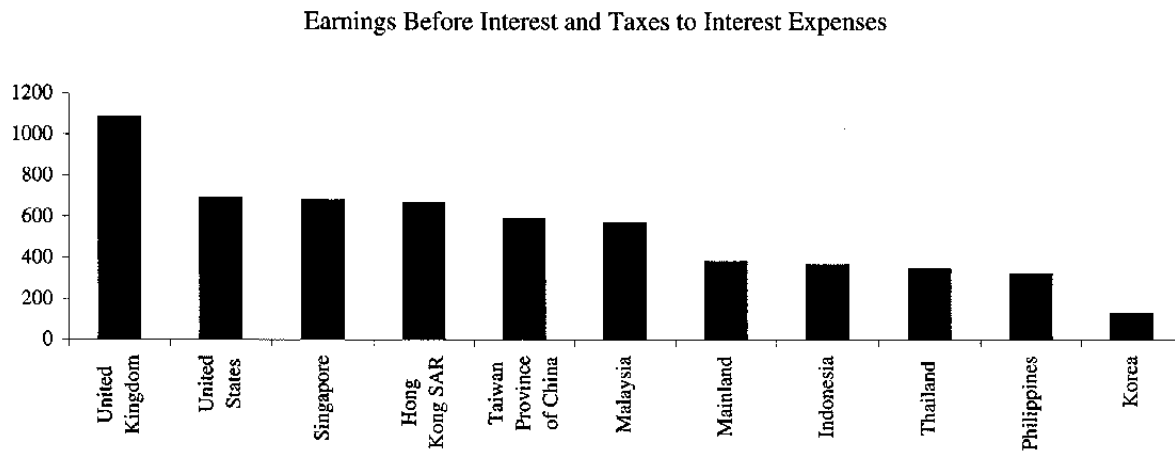
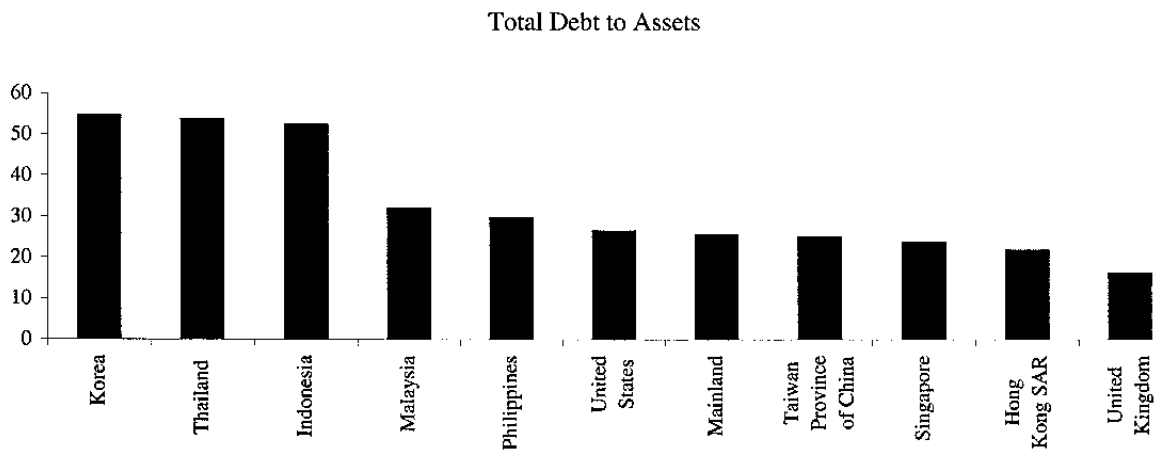
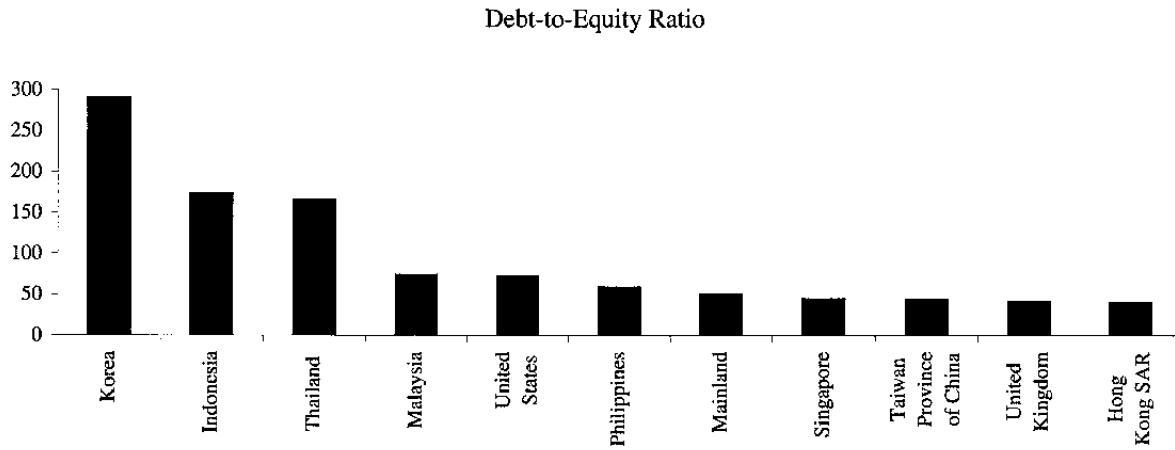
	All Authorized Institutions					All Local Banks				
	1996	1997	1998	1999	2000 Q1-Q2	1996	1997	1998	1999	2000 Q1-Q2
Profitability										
Operating profit to shareholders' funds	...	...	...	...	...	18.17	17.81	11	12.6	16.9
Post-tax profit to shareholders' funds	...	...	...	...	...	16.21	15.63	9.5	11.6	14.5
Return on assets (operating profit)	0.83	0.7	0.36	0.42	0.93	2	1.88	1.18	1.28	1.69
Return on assets (post-tax profit)	0.73	0.61	0.28	0.39	0.83	1.79	1.65	1.02	1.18	1.44
Net interest margin	1.13	1.08	1.13	1.34	1.41	2.58	2.43	2.26	2.29	2.39
Cost-income ratio	43	45.9	48.3	44.3	43.4	37	37.8	39.6	37.8	35.9
Asset quality										
Bad debt charge to total assets	0.09	0.12	0.45	0.64	0.21	0.18	0.15	0.63	0.6	0.25
Percent of total loans										
Provisions	0.85	1.02	2.17	3.14	3.3	1.93	2.01	3.32	4.27	4.03
NPLs (substandard, doubtful, and loss)										
Gross	1.1	1.25	5.27	7.24	7.17	2.68	2.08	7.33	9.81	8.59
Net of specific provisions	0.73	0.83	3.79	4.79	4.63	1.7	1.19	5.06	6.59	5.62
Net of all provisions	0.24	0.22	3.09	4.1	3.88	0.75	0.07	4.01	5.54	4.56
Loans overdue 3 months or more	1.1	1.06	4.18	5.72	5.83	2.4	1.81	5.12	6.96	6.38
Capital adequacy										
Equity-to-assets ratio	...	...	...	...	...	10	9.9	9.1	8.9	9.1
Capital-adequacy ratio	...	...	...	...	...	17.8	17.5	18.5	18.7	18.7
Liquidity										
Loan-to-deposit ratio (all currencies)	159.3	154.6	111.9	88.5	78.6	59.4	68.6	58.9	52.8	52.5
Hong Kong dollar loan-to-deposit ratio	103.4	113.3	100.6	91.3	91.6	71.1	78.6	71.6	68.4	70.9
Foreign currency mismatch (for <3 months)	90	87	91.1	96.9	93.2	91.4	87.4	108.7	109.6	101.4
Loan concentration by sector 1/										
Building, construction, etc.	18.5	19.9	19.9	20	20.6	21.7	22.1	21.1	20.8	21.3
Residential property	20.6	21.7	24.6	27.7	27.8	29.4	29.5	33.1	35.2	35.1
Financial concerns	11.5	11.8	11.2	9.8	9.1	3.8	3.6	3.5	3.9	3.6
Wholesale and retail trade	9.8	9.3	8.6	7.5	7.1	6.9	7	6.8	5.9	5.5
Other	39.6	37.3	35.7	35	35.4	38.2	37.8	35.5	34.2	34.5
Loan concentration by region 2/										
Industrial countries	71.9	70.5	67.4	70.8	69.9	45.3	42.7	54.2	62.8	64.6
Emerging market countries	22	23	25	21.2	21.3	36.2	38.9	31.1	24.1	21.8
ASEAN and Korea	14.4	14.3	16.7	14.6	14.8	22.2	21.4	19.4	16.4	15.2
China	7.6	8.8	8.4	6.6	6.5	14	17.5	11.7	7.7	6.6
Other	6	6.5	7.6	8	8.8	18.5	18.5	14.7	13.1	13.6
Concentration measures										
Asset share of:										
Three largest banks	20.3	20.7	19.8	23.2	22.5	54.2	55.2	57	58.1	58.3
Ten largest banks	48.9	46.9	43.6	44.8	43.7	76.9	76.5	78.1	79.1	79.2

Source: HKMA Annual Report, Monthly Statistical Bulletins.

1/ As a percentage of total loans for use in Hong Kong SAR.

2/ As a percentage of total external claims of Hong Kong SAR.

Chart II.1. Corporate Leverage Indicators, 1997
(Measured for the median of all traded companies)



Source: Bloomberg.

Table II.4. Comparison of Prudential Norms Across Asia (Required and Actual Practices) Using the CAMELOT Framework

Key Prudential Norms	Hong Kong SAR	Singapore	Malaysia	Thailand	Indonesia	Korea	Philippines
1. Capital adequacy	Satisfactory norms at 8%, actual CAR higher at 12% (Tier 1: 8%).	Strong. 12% minimum CAR requirement by MAS, of which 10% Tier 1.	Satisfactory at 8% in line with BIS. Min. Tier 1 at 8%.	Fair norms, min Tier 1: 4.25% but, in practice, weak capital base, delays in recap., forbearance.	Weak norms. Total CAR brought down to 4% from 8%. Most banks have negative adjusted capital.	Satisfactory norms, min Tier 1 CAR 4%. More lenient on CAR by BOK.	Strong. Tier-1 capital to asset ratio at 10%. Actual CAR very high at 17%.
2. Asset quality	Fair norms, strong in practice. Interest accrual stopped after loans past due 3 months, clawback on doubtful loans, >=1% general provision practiced.	Fair norms, strong in practice. Interest accrual stopped after loans past due 3 months, no clawback, 2%-3% general provision practiced.	Deteriorating norms. Less strict NPL recognition and accrual policy. No substandard loan provisioning requirement.	Tightened norms (NPL recognition, accrual policy to 3 months from 6-12 months), but lenient on provisioning (phased in through 2000).	Fair norms, loans classified NPLs if past due >3 mths. But easy to restructure NPLs to avoid reclassifications. Implementation and enforcement are still key issues.	Strongest norms. Loans past due >1-3 months precautionary, >3 months substandard or doubtful. Interest accrual stopped after one month past due.	Strong norms, strict NPL recognition and accrual policy. 2% general provisions phased in. But some loan refinancing, loan for property swap.
3. Management/credit culture	Prudent, conservative mgt. Cash flow-based lending. HKMA rates banks on CAMEL framework, will soon require banks to have credit risk rating system.	Prudent, conservative mgt. Lending decision largely based on cash flow and perceived risks. MAS on top of situation, using CAMEL to rate banks.	Mandated lending/rescues of corporates and banks; follow-on reforms awaited.	Collateral-based lending. No credit rating system.	Collateral-based lending. High intergroup loans. Reliability of reported numbers and frequent loan restructuring still key issues.	Government-directed lending, limited focus on ROE. Recent sales of Korea First Bank and Seoul Bank to foreign banks should help strengthen bank mgt's, credit culture over time.	Top bank management seasoned and cautious. Still somewhat collateral-based lending. BSP rates banks on CAMEL basis. No credit risk rating system required.
4. Earnings	Fair to good. High CARs understate ROEs; quasi-oligopolistic structure.	Fair to good, understated ROEs given high CARs. Somewhat oligopolistic structure.	Satisfactory ROEs due to high CARs. Mandated lending to Bumiputras and SMEs hurt profitability somewhat.	Poor. Most banks have no pre-provision operating profits due to very high NPLs.	Poor. Very high NPLs exacerbated by high interest rates, volatile rupiah. Banks have negative cash flow.	Weak. Still limited focus on ROE, asset quality. Near-term higher losses from sales of NPLs, provisioning.	Good, high ROAs, ROEs. Good growth prospect. But some mandated lending to weak sectors (agriculture and SMEs).
5. Liquidity	Good. High 25% liquidity reserve requirement. Banks liquid, have low L/D ratio.	Good. High 18% liquidity reserve requirement. Banks generally liquid, avg. L/D ratio 90%.	Fair, L/D ratio 100%. Limited forex mismatch.	Improving. Deposit run stabilized. Declining L/D ratio to 100% as banks do not lend.	Weak, low 5% reserve requirements. Most banks suffer capital flight, deposit run.	Fair to good, straight L/D 86%, limited net forex open position.	Strong. High 17% reserve requirements. Banks generally have <80% L/D ratio. Forex open position capped.
6. Operating/regulatory environment	Very good. HKMA highly regarded and on top of situation. Strong foreclosure framework, actively used, rapid resolution.	Very good. MAS vigilant, on top of situation. Well-established, credit-friendly foreclosure framework.	Good. BNM on top of situation, will intervene if necessary. Well-developed foreclosure framework.	Norms improving. Ongoing reorganization of BOT. Forbearance, enforcement still key issues.	Norms are generally fair. But implementation and enforcement are key issues.	Norms now exceed global standards. Strengthening bank examination. Well-developed foreclosure framework.	Norms on par with U.S. standards. Significant progress in past few years, continued closer, prescriptive supervision vital.
7. Transparency/disclosure	Best in region. Among very few requiring disclosure on sectoral loans and provisioning, non-accrual and restructured loans.	Improving rapidly but still limited disclosure. Significant progress likely in 3-6 months (1998 year end NPLs, loan loss provisioning, reserves).	Good.	Improving. Classified assets, needed provisioning disclosed bi-annually.	Poor, delayed, unreliable disclosure.	Improving.	Satisfactory and improving.
	6 measures	5 measures	3 measures	0 measures	0 measures	2 measures	3 measures
	1 measure	2 measures	2 measures	4 measures	0 measures	4 measures	4 measures
	0 measures	0 measures	2 measures	3 measures	7 measures	1 measure	0 measures
	Strong norms and enforcement	Fair norms and enforcement		Weak norms and enforcement			

Source: Roy Ramos, *Asia Banking Survey*, March 1, 1999, Goldman Sachs.

III. HONG KONG SAR'S DEBT MARKET¹

A. Introduction

1. **Hong Kong SAR has one of the most advanced financial centers in Asia.** The Hong Kong SAR financial markets not only intermediate a significant amount of domestic savings, but also large cross-border flows of funds. The economic importance of the financial markets domestically has increased over the years as Hong Kong SAR transformed itself from a manufacturing-based to a service-based economy. By end-1999, services accounted for 94 percent of GDP, with the share of financial services at 25 percent of GDP. Cross-border financial transactions, at 220 percent of GDP, now rival external trade in goods and services at 260 percent of GDP.

2. **Yet, as in most of the region, the banking sector and equity markets dominate the financial system.** However, there is now increasing recognition among policymakers and market participants of the need to develop a liquid and active debt market. The reasons being mainly two fold: first, in order to remain competitive as a financial center, Hong Kong SAR needs to offer international investors a wider range of investment vehicles, especially in fixed-income securities; and second, a more diversified set of markets could help strengthen corporate and bank risk management practices through improved disclosure and governance standards, and more effective market discipline.

The aim of the chapter is three-fold:

- First, assess the roles played by banks, equity markets, and debt markets in financial intermediation in Hong Kong SAR.
- Second, investigate the possible reasons behind the slow growth of debt instruments.
- Third, discuss some options that could spur the development of debt markets.

The main findings of this chapter are the following:

- Hong Kong SAR banks and equity markets have successfully financed the transformation and rapid growth of the economy since the mid-1980s. The most important source of corporate financing is bank credit, followed by equity.
- While among the most liquid in the region, Hong Kong SAR debt markets remain relatively underdeveloped by international comparison. While the success of banks and equity markets in raising funds may have been an important reason holding back the development of debt markets, there are other potential supply- and demand-side factors that may have played their part.

¹This chapter was prepared by William Lee (Resident Representative, Hong Kong SAR Sub-Office). Jahangir Aziz (ext. 37693) is available to answer any technical questions.

- From the supply side, among other factors, weak corporate transparency, difficulties in obtaining accurate credit assessments, a small domestic investor base, and tax distortions have held back the development of the private debt market.
- From the demand side, the debt instruments traded in Hong Kong SAR market are close substitutes of those available in other advanced financial centers, where many of the aforementioned supply-side concerns are less severe.
- Consequently, addressing the supply-side shortcomings and developing more debt instruments of varied maturities and credit risk along the yield curve could help in increasing the attractiveness of debt markets in Hong Kong SAR to global investors.

B. Financial Markets in Hong Kong SAR

3. **Banks have dominated financial intermediation in Hong Kong SAR.** In 1999, deposits of the 285 authorized institutions in the sector (including 156 licensed banks) increased by 18 percent of GDP, while in that year domestic saving accounted for 31 percent of GDP. Like elsewhere, much of this dominance has rested on their ability to profitably provide financing for relatively opaque investments and firms. Moreover, the banks have also adapted well to the financing requirements of Hong Kong SAR enterprises. Most of these businesses are family-owned small- and medium-sized enterprises (SMEs). SMEs comprise over 98 percent of all Hong Kong SAR enterprises, and account for 60 percent of private-sector employment. As in most countries with similar industrial structures, Hong Kong SAR banks have developed specialized lending skills and loan practices to help them meet the financing needs of these diverse firms, spanning both the industrial and service sectors.

4. **However, even among advanced economies, where markets play a larger intermediation role, the relative importance of bank versus market finance varies considerably.** Hong Kong SAR banks' assets are a larger share of GDP than even bank-intensive advanced industrial economies such as Germany. However, Hong Kong SAR banks' assets are a smaller share of GDP compared to Singapore's.

Banking System Assets and External Liabilities
(End-1999)

	Total Assets		External Assets		External Liabilities	
	(In US\$ bn.)	(In percent of GDP)	(In US\$ bn.)	(In percent of GDP)	(In US\$ bn.)	(In percent of GDP)
Hong Kong SAR	839	528	476	299	372	234
Singapore	677	800	419	495	417	493
United States	5,836	63	871	9	1,103	12
United Kingdom	3,962	275	1,817	126	1,894	131
Japan	7,242	166	1,174	27	542	12
Germany	5,602	266	871	41	873	41

5. **The equity market in Hong Kong SAR is among the largest in the world.** The market capitalization of the Hong Kong Stock Exchange (HKSE) was HK\$4.8 trillion (377 percent of GDP) at the end of 2000; daily turnover volume averaged about HK\$12.4 billion in 2000, and 736 companies were listed on the HKSE, including 47 Chinese state-owned enterprises (H-shares). The well developed equity market reflects, aside from

high domestic saving and rapid, sustained economic growth, the authorities' traditional laissez-faire approach to regulation, and the absence of exchange and capital controls.² Unlike some other financial centers, onshore and offshore financial activities and non-resident and resident activities have been treated the same in Hong Kong SAR, attracting issuers and investors and thereby helping to expand market liquidity.

6. **The equity market has been the second largest source of financing for firms.** In particular, equity markets remained active even as bank lending continued to contract in the aftermath of the Asian crisis in 1997. In recent years, Mainland enterprises and Hong SAR-based "new economy" internet-related businesses have been noticeably active in raising funds through initial public offerings in Hong Kong SAR equity markets.

Financing Activities of Hong Kong SAR Corporations
(In billions of Hong Kong Dollars)

	Debt Issues (HK dollars)	Equity Issues*	New Bank Loans	Total Funds
1996	4	100	203	307
1997	13	248	288	549
1998	6	38	-40	4
1999	24	150	-81	93
2000-H1	6	154	20	180

Source: HKMA

(*) Includes initial public offerings, rights issues, and private placements.

7. **Hong Kong SAR's debt market, although one of the most liquid in the region, has played a considerably lesser role in intermediation.** Although, the debt market increased 40 fold during the last decade, it remains small with limited secondary market liquidity. The Hong Kong dollar market is

	Bond Market Size (End-1998)	
	(In US\$)	(In percent of GDP)
Hong Kong	51	32
Singapore	20	24
United	12,608	149
United	790	57
Japan	4,488	118
Germany	2,579	122

dominated by debt issued by the Exchange Fund, authorized institutions, and multinational development banks, accounting for 83 percent of total debt issued in 1999.

²The authorities introduced several reforms after the stock market crash of 1998, contributing to the stock market's strong performance over the past decade. A Securities Review Committee (now the Securities and Futures Commission) was created to regulate companies listed on the HKSE; internationally accepted regulatory standards conducive to market transparency and fairness have been introduced and upgrading market technology infrastructure with regard to trading and settlement systems in order to improve risk management practices, price discovery, and market liquidity.

8. **Private debt market has gained in importance since the Asian crisis.** Demand by banks for fixed income securities has been relatively high since the crisis because of banks' perception of poor lending opportunities. As bank lending contracted during the two year period following the Asian crisis, new private sector corporate debt issues grew to help meet the financing requirements of those few firms with access to the credit market. Nevertheless, at end-1999, outstanding Hong Kong dollar debt securities remained small (36 percent of GDP), relative to bank loans (128 percent of GDP) and equity capitalization (383 percent of GDP). The strong presence of banks and equity markets, and the lack of a well-developed private debt market, present firms with limited choices—they can either borrow through banks or share equity interest with investors.

9. **The pre-eminence of banks in financial intermediation is also reflected in the importance of bank credit in domestic investment.** As in other countries, expectations of profit growth (approximated by the change in GDP growth) and the cost of financing (proxied by the real interest rate) are important factors in determining investment in Hong Kong SAR. However, the bank credit channel is statistically more important than the cost of capital. The estimated elasticity of loan growth on investment is an order of magnitude larger than the elasticity of the real interest rate. Also striking is the effect the property market has on investment, independent of the credit channel—a 1 percentage point rise in real property prices has the same impact on investment as a 1 percentage point increase in loan growth. Moreover, once the credit channels and property prices are included, the real interest rate was found not to have a significant independent impact on investment.

Investment Equations

	Gross Domestic Capital Formation		Machinery and Equipment		Construction	
Accelerator: Change in GDP growth	0.18***	0.27***	0.61*	0.69*	-0.56*	-0.32**
Real interest rate	-0.19	1.67	-0.35	1.97	0.70	2.38**
Real loan growth	--	0.18**	--	0.22**	--	0.42*
Relative Property Price	--	0.27*	--	0.27*	--	0.17**
Adjusted R ²	0.75	0.82	0.77	0.82	0.44	0.65

Source: Staff estimates.

Dependent variable is the log of the share of the respective investment category in GDP. The independent variables (except the real interest rate) are logs of the respective variables deflated by the investment goods deflator. The real interest rate was estimated using an ex ante expected inflation series constructed by the HKMA. "***," "**," and "*" denote statistical significance at 10, 5, and 1 percent levels, respectively.

10. **Bank credit appears to be strongly affected by property market conditions.** Several factors were found to affect bank loan growth—notably the lending rate, and GDP

growth.³ While it was not surprising to find that the behavior of property prices are key to determining property-related loans, their role in determining the availability of bank credit to less closely related activities, such as manufacturing, was unexpected. The estimated elasticity of property prices dwarfs those for the other factors for both construction and manufacturing loans. The only loan category where property prices have no measurable effect was in credit card loans; as expected, income growth (proxied by GDP growth) was the main determinant of credit availability.

Loan Growth Equations

	Total	Manufacturing	Real Estate
Relative property prices	0.26***	0.30*	0.40*
Real interest rate	0.01	0.02**	0.01
GDP growth	-0.19	-0.26*	-0.10
Stock market volatility	-0.03	0.01	-0.00
Adjusted R ²	0.18	0.50	0.44

Source: Staff estimates.

Dependent variable is the log of loan growth (total, manufacturing, and real estate-related—including mortgages) deflated by the investment goods deflator. The independent variables (except the real interest rate and stock market volatility) are log changes, and property price changes are relative to the investment goods deflator. The real interest rate was estimated using an ex ante expected inflation series constructed by the HKMA. “***,” “**,” and “*” denote statistical significance at 10, 5, and 1 percent levels, respectively.

11. The dominant influence of the property market on bank credit underscores the relative paucity of quality information about firm operations. The pervasive influence of the property market on non-real estate bank lending is explained by the widespread use of property as collateral in lending. Despite the collapse of Hong Kong SAR property prices since the Asian crisis, and global industry trends toward more risk-based lending practices, anecdotal evidence suggests that collateral-based rather than risk-assessment-based lending remains an important if not dominant practice among many Hong Kong SAR banks.⁴ Two

³Faster GDP growth tends to decrease bank lending, especially in manufacturing, because rapid growth is initially associated with rising cash flow, which serves to fund investment demand during the early stages of the business cycle. The demand for external financing rises during latter stages of the cycle when GDP and cash flow growth slows and desire to expand capacity rises. Although the equity market is an alternative to bank lending, neither the level nor the volatility in the stock market had significant effect on loan growth.

⁴Hong Kong SAR bank supervisors and regulators have been encouraging banks to perform more risk-based lending, and have issued letters to all banks citing specific credit principles that they are expected to follow, including the need to evaluate borrowers’ debt-service capabilities. Promoting such lending practices would also increase the marketability of bank assets and could help develop a secondary market for such assets. At the very least, improved risk classifications would allow bank management and supervisors to better assess the conditions of bank balance sheets.

(continued...)

surveys by the HKMA of SME financing practices and bank lending policies indicated that almost all companies that borrowed from banks had their credit facilities secured almost fully by collateral—usually real estate.⁵ There was a consensus among banks that SMEs were not sufficiently transparent and had poor accounting and corporate governance standards. Banks claimed that these difficulties warranted the use of collateral as an important criterion for approving business loans.

C. Factors Holding Back Debt Market Growth

12. Among the factors that have impeded the development of Hong Kong SAR's debt market are: (i) inconsistent tax treatment of government and private debt securities; (ii) inadequate issuance of Exchange Fund bills and notes at various maturities to provide a reliable benchmark yield curve; (iii) difficulties in obtaining accurate credit assessments coupled with restrictive credit rating requirements under the Bank Ordinance for certain securities to be considered liquefiable assets or eligible to be counted as bank capital; and (iv) the lack of sufficient details in most firms' corporate disclosure practice. Low secondary market liquidity, limited investor interest particularly among institutional investors, and cumbersome listing and issuance procedures have also been contributing factors.

13. Tax distortions arising from the special status of some debt issuers have also slowed the development of segments of the debt market. In particular, income earned on Exchange Fund papers, multilateral development bank papers, and certificates of deposit issued by local authorized institutions that are held by nonfinancial institutions are exempt from profit tax. Also, interest and dividend earned by institutional investors (other than authorized institutions) on bank deposits and stocks are tax exempt. In contrast, exemptions on corporate debt instruments is more restrictive.⁶ Such distortions have biased issuance in favor of Exchange Fund bills and multilateral development bank papers and retarded the growth of the corporate debt market.

14. Anecdotal evidence suggests that Hong Kong dollar debt issues are also limited by the ready access to the U.S. dollar market for the larger local corporations. As the

⁵See "Survey of Financing Situation of Small and Medium-Sized Enterprises," Hong Kong Monetary Authority Quarterly Bulletin, No. 24, August 2000, pp. 33–38.

⁶A 50 percent tax concession for income earned on qualifying debt instruments is available for corporate debt. Qualifying debt securities (QDSs) are Hong Kong dollar debt securities issued by the private sector which: (a) have a rating higher than the minimum credit rating set by the HKMA (currently at BBB-from S&P's); (b) have an original maturity not less than 5 years; (c) have a denomination not less than HK\$50,000; (d) are issued to the public; and (e) are cleared through the CMU. Hong Kong dollar debt securities issued by statutory and government-owned corporations, such as Mass Transit Railway Corporation, Airport Authority, Hong Kong Mortgage Corporation and Kowloon-Canton Railway Corporation, will also qualify as QDs if they can meet the above requirements, except condition (a).

U.S. dollar market is wider and deeper than the Hong Kong dollar market, larger and longer maturity issues can be used with proceeds readily swapped back into local currency. Indeed, the secondary Hong Kong dollar debt market is considered by many financial market participants as unattractive because it is relatively illiquid, especially for corporate debt.

15. **In some countries, the development of securities markets has also been impeded by the dominating presence of banks and the lack of institutional investors.** In bank-dominated financial systems (such as France, Germany, and Japan), banks often exercise direct control over securities markets by limiting access (through control of distribution channels or with access to payments systems) for nonfinancial firms. This allows banks to use the securities markets to fund themselves. In Hong Kong SAR, market makers are also the largest banks. It would be reasonable to infer that insofar as there is incipient demand for specific fixed-income products (of certain maturities or generating certain cash flows), banks would issue their own securities to satisfy that demand (capturing both implicit underwriting fees and pricing gains) before underwriting third-party issues. In the United States, historical divisions in the financial industry allowed more specialized financial firms (separate commercial and investment banks) to compete and thus develop the securities markets. The introduction of the Mandatory Provident Fund will attract institutional investors with sufficient appetite for fixed-income investment papers. This will allow nonfinancial firms more opportunities to bring corporate paper to the markets.

16. **In Hong Kong SAR, there does not appear to be any obvious regulatory constraint that may have held back debt market development.**⁷ In fact, the money market in Hong Kong SAR is considered fairly well developed.⁸ Moreover, active derivatives and futures markets also exist. A factor that may have held back debt market development, including the use of repos, was the lack of a government bond market, which has only begun to develop lately.⁹ Government bonds are typically used as collateral in repo arrangements. It

⁷However, as discussed earlier there are distortionary taxes that have contributed to the underdevelopment of the corporate debt market.

⁸Hong Kong has a sizable and active interbank market, which has served as a major source of Hong Kong dollar funding or investing short-term deposits for the banking system. Interbank funds account for about one-fourth of the total Hong Kong dollar liabilities of all banking institutions, mirroring the market's key role in financial intermediation.

⁹Money markets are critical for the development of liquid debt markets as they anchor the short-end of the yield curve by pricing liquidity. In addition, they facilitate cash management and can be used to finance position taking. A well-functioning money market encourages investors, brokers and dealers to trade and take positions, necessary activities to enhance market liquidity. To this end, an active repo market would also help facilitate increased dealings in OTC markets where most debt is traded. Without such collateralized borrowing arrangements, trading and position financing would have to resort to usually more costly uncollateralized bank lines of credit.

was not until 1993 that the government began addressing these concerns, by raising medium-term funds with five-year maturity through the issue of the Exchange Fund Notes. The government extended the maturity term to ten years in 1996 to help develop a benchmark long-term yield curve.

17. Obtaining accurate credit ratings for local businesses has been a major obstacle in encouraging increased use of debt issues. There are two factors contributing to difficulties in assessing the financial conditions of firms to determine who qualifies as a high-rated debt issuer. One aspect peculiar to Hong Kong SAR is that credit ratings of even Hong Kong SAR's best firms are disadvantaged by the assessment practices of international rating agencies. Corporate credit ratings are capped by the rating of Hong Kong SAR sovereign debt, which in turn is arguably held down by the Mainland's lower credit rating. Some market observers have noted that the sovereign rating artificially raises the cost of funds for credit-worthy medium-sized enterprises and is one reason they are denied access to credit markets. This aspect of the general problem of obtaining accurate credit assessments for a wider range of Hong Kong SAR businesses may improve with better understanding of the "one country, two systems" principle by rating agencies. Recent initiatives by the HKMA to promote a commercial credit reference agency are expected to help improve the availability of information and assessments about corporate borrowers.

18. Weak corporate transparency by international standards among many Hong Kong SAR businesses has also impeded more extensive use of debt instruments. Even banks, who arguably have developed specialized lending skills, require credit enhancements (collateral) in almost all lending to SMEs. To be sure, SMEs generally do not require extensive direct access to capital markets for external financing, and over 95 percent of all corporations had profits of under HK\$10 million (US\$1.3 million). Moreover, larger firms, especially banks, have scored high among their peers in the region for disclosure practices, but even these instances have been criticized as not having adopted global best practices.¹⁰

D. Some Policy Options to Support Debt-Market Development

19. Over the years, the authorities have taken several steps to encourage the growth of Hong Kong SAR's debt market. As noted, the benchmark yield curve was extended in

¹⁰Two studies by consultants Deloitte Touche Tohmatsu and KPMG assessed disclosure practices of major Hong Kong SAR banks and noted that while disclosure standards comply with best practice guidelines of the HKMA, additional disclosures were needed to meet global best practices as recommended by the Basel Committee on Bank Supervision. These additional disclosures included more detailed accounting policies and key assumptions for provisions, a geographical analysis of loans, concentrations of credit risk, interest rate exposures from loans, "fair value" of loans, and better information on loan exposures and credit-risk management.

1996 with the issuance of 10-year Exchange Fund Notes.¹¹ Mortgage and asset-backed securities market activity has been promoted by the government-owned Hong Kong SAR Mortgage Corporation. Improvements to the financial infrastructure have included: (i) the introduction of real-time gross settlement (RTGS) payment systems in 1996; (ii) the integration of the HKMA's Central Money Markets Unit with the RTGS system to allow electronic securities settlement and clearing; and (iii) implementing a U.S. dollar clearing system in 2000, which enable Hong Kong SAR markets to settle U.S. dollar transactions within the Asian time zone.

20. **However, several areas for public policy reforms and further infrastructure building remain.** To address inconsistent tax treatment of government and private debt securities, cumbersome listing and issuance procedures and an inadequate benchmark yield curve, specific changes in tax, regulatory, and public debt management policies to reduce the tax bias against corporate debt issuers, to streamline listing and other documentation requirements for debt issuers, and provide market participants with regularly scheduled and reasonably sized debt issues at key benchmark maturities are needed.¹² Documentation requirements for new issuers in general, not just debt, are under review by the Securities and Futures Commission and related agencies with the objective of streamlining procedures and reducing issuance costs. Many global market participants have demanded that countries adopt a firm pre-announced issuance calendar to provide institutional investors with greater certainty about issue dates and amounts—thus enabling them to more easily structure portfolios with desired maturities.

21. **Recent initiatives to bring Hong Kong SAR's financial legislation at par with international standards will help, but additional steps are needed.** Refining legislation, codes, and standards, that inter alia, reduce the cost of issuing securities, are only some of the changes to the financial infrastructure necessary for developing deeper and more liquid markets. The disciplines of better financial disclosures and high standards of corporate governance will deepen the commercial debt market. Financial policymakers, therefore, need to set incentives for companies to produce high quality information required by investors, and put in place mechanisms for ensuring the implementation of high standards of corporate accountability and responsibility (especially to minority shareholders) to complement those arising from market discipline.¹³

¹¹Since August 1998, the HKMA limited the issuance of Exchange Fund Notes to the volume of capital inflows to strengthen credibility in the currency board.

¹²It should be noted that since November 2000, the HKMA has decided to adjust the Exchange Fund Bills and Notes issuance programs with more longer term papers in place of the ones with shorter maturities that retire.

¹³According to a 1999 survey by Credit Lyonnais Securities, investment firms with superior corporate governance have outperformed other emerging market companies in rising markets and have less volatility in down markets.

IV. EXTRACTING MARKET BELIEFS AROUND THE AUGUST 1998 INTERVENTION¹

A. Introduction

1. **Using prices of currency derivatives to extract market beliefs about future exchange rate movements has been a well established practice in economics.** The most commonly used variable—the forward exchange rate—while extremely useful and easily obtainable suffers from two drawbacks. First, it reveals only what the market, on average, believes about future exchange movements. On many occasions however, information about the probabilities the market assigns to various possible future exchange rate levels can be useful. For example, it might be useful to know what the market believes is the likelihood of an extreme correction of the exchange rate. The second drawback is that empirical studies often find forward rates to be biased estimators of future exchange rate outcomes.
2. **This chapter discusses a procedure to extract the probability distribution of future exchange rate movements based on currency option data.** The methodology exploits the fact that an option's price broadly reflects the probability that it will be profitable (in the money) at maturity. For a given maturity, the difference in option prices at different strike rates reflects differences in the probability of ending in the money. Thus, given a series of option prices at different strike prices (in this case, values of the exchange rate), one can compute the probabilities assigned by the market to different outcomes of the exchange rate. A method due to Malz (1997)² is used to extract the probability distribution of the Hong Kong dollar around the time of the stock market intervention of August 1998, which reveals the differences in market beliefs before and after the intervention.
3. **This procedure and other existing methods do not yield the “true” statistical probability function, but rather the “risk-neutral probability” distribution.** The risk neutral probability is a function of (i) the statistical or “true” probability and (ii) the market's subjective attitude towards risk. For example, if the market is highly risk averse, it will be willing to pay a high price to insure against a crash, which statistically may have a very low probability of occurring. Yet, the probability distribution derived under the risk-neutrality assumption would indicate a high probability of the crash occurring.
4. **In this paper, a new procedure that adjusts the risk-neutral probability for the market's risk aversion is presented.** This allows to better gauge how closely shifts in the extracted probability distribution reflect changes in market sentiment.

¹This chapter was prepared by Peter Breuer (ext. 36364).

²See Allan M. Malz, “Estimating the Probability Distribution of the Future Exchange Rate from Option Prices,” *Journal of Derivatives*, Winter 1997, pp. 18–36.

B. Extracting the Risk-Neutral Exchange Rate Probability Distribution

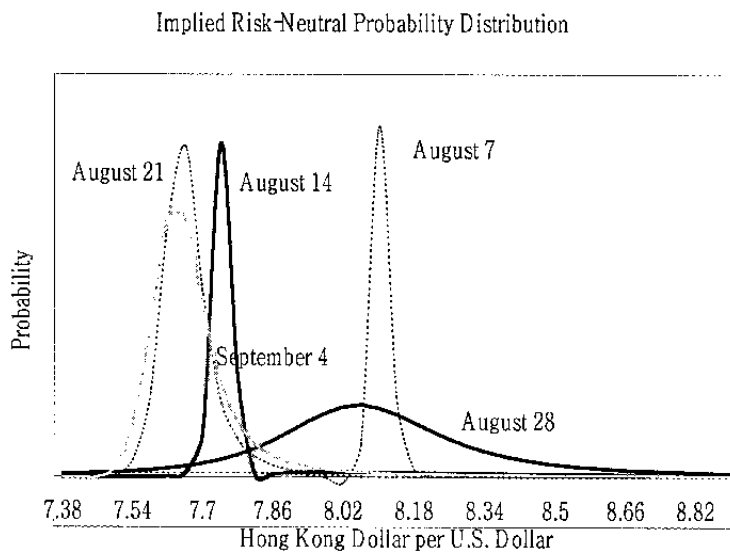
5. **The method used for extracting probability distributions relies on implied volatility data of currency options, available in over-the-counter (OTC) markets.** The data consists of five implied volatility³ quotes for each day: two quotes (with deltas 10 percent and 25 percent) represent the prices of out-of-the money options, two quotes (with deltas 75 percent and 90 percent) represent in-the-money options and one quote (50 percent delta) represents the at-the-money forward option. Based on these observations and using the technique described in Box IV.1, probability distributions of expected Hong Kong dollar—U.S. dollar exchange rates are derived for the period around the August 1998 intervention.

6. **In the period immediately before the August 1998 intervention, the Hong Kong dollar came under several waves of speculative attacks.** At the same time, stock and futures prices plummeted, with the Hang Seng index sinking 25 percent from mid-July, to 40 percent of its pre-crisis level. The authorities, arguing that the markets were being manipulated, and concerned that domestic confidence could be seriously weakened, reacted by intervening in the stock and futures markets between August 14 and 28, acquiring 6 percent of market capitalization.

7. **While the exchange rate peg remained intact, shifts in the extracted probability distribution reflected market sentiment changing with the intervention.** By August 7

there was almost a consensus in the market that the Hong Kong dollar peg would break within 3 months. The mean of the risk-neutral exchange rate probability distribution was HK\$8.08=US\$1 against the linked rate of HK\$7.8=US\$1. After the initial round of intervention fears of devaluation calmed temporarily. By August 21 (the first observation after the August 14 intervention), the mean of the risk-neutral exchange rate distribution

had moved to HK\$7.99=US\$1. However by August 28, although widely dispersed, market



³Implied volatility is the volatility of the underlying asset returns that is assumed to prevail over the option's life. Since any option price "implies" only one volatility, quoting prices in the form of absolute prices or implied volatilities is equivalent. The Black-Scholes option pricing formula is used to go back and forth between the two.

beliefs again expected a collapse of the peg. The last intervention took place on August 28 and by September 4, market sentiment gravitated almost uniformly back to the linked rate.

8. **How closely do these extracted probability functions reflect market beliefs?** The procedure used in this exercise extract the risk-neutral probability function and not the true statistical distribution. Risk-

Moments of Risk-Neutral Probability Density Distributions (Hong Kong dollar)					
	7-Aug-98	14-Aug-98	21-Aug-98	28-Aug-98	4-Sep-98
<i>Risk Neutral</i>					
Mean	8.06	7.83	7.67	8.09	7.71
Standard deviation	0.15	0.23	0.07	0.27	0.17
Skewness	-2.99	2.80	1.90	0.37	3.95
Kurtosis	11.05	10.18	8.23	3.62	20.99
<i>Risk Adjusted</i>					
Mean	8.02	7.82	7.73	8.13	7.77
Standard deviation	0.14	0.25	0.14	0.31	0.22
Skewness	-3.06	2.40	0.72	0.11	2.14
Kurtosis	11.56	8.31	5.40	2.93	9.42
<i>Difference Between Risk Adjusted and Risk Neutral</i>					
Mean	-0.04	-0.01	0.06	0.03	0.06
Standard deviation	-0.01	0.02	0.07	0.04	0.05
Skewness	-0.07	-0.40	-1.18	-0.26	-1.81
Kurtosis	0.51	-1.86	-2.84	-0.70	-11.57

Source: Staff estimates.

neutral distributions do not expunge other characteristics of the market, such as the risk aversion of market participants and the liquidity of the market (Box IV.2) from the calculated probabilities. Consequently, it is difficult to unambiguously conclude that a shift in the implied probability distribution reflects a change in beliefs about the future value of the exchange rate or is due to changes in the underlying market structure, such as market liquidity or risk aversion.

C. The Volatility Risk Premium

9. **Like other derivatives, currency options typically price in premiums for various types of risk.** One way of testing whether other types of risks are being priced in, is to estimate how well the implied volatility of currency options predicts realized volatility, since the extracted probability function is derived from quoted implied volatilities. If the market is efficient then implied volatilities should be unbiased predictors of realized volatility, and the risk-neutral distributions should reflect beliefs about future exchange rate changes only.

10. **Data for the Hong Kong dollar and the Thai baht around the Asian crisis show that implied volatility is a biased predictor of future realized volatility (Table IV.1).** The test was done by estimating:

$$\sigma_{i,T} = a + b\sigma_i^{IV} + \varepsilon_{i,T},$$

where $\sigma_{i,T}$ is the realized volatility over the life of the option measured as the annualized standard deviation from day t to T —time of maturity of the option, and σ_i^{IV} is the implied volatility. If implied volatility are unbiased predictors of realized volatility, the intercept, a , should be close to 0, the slope coefficient b should be close to 1.⁴ While implied volatility

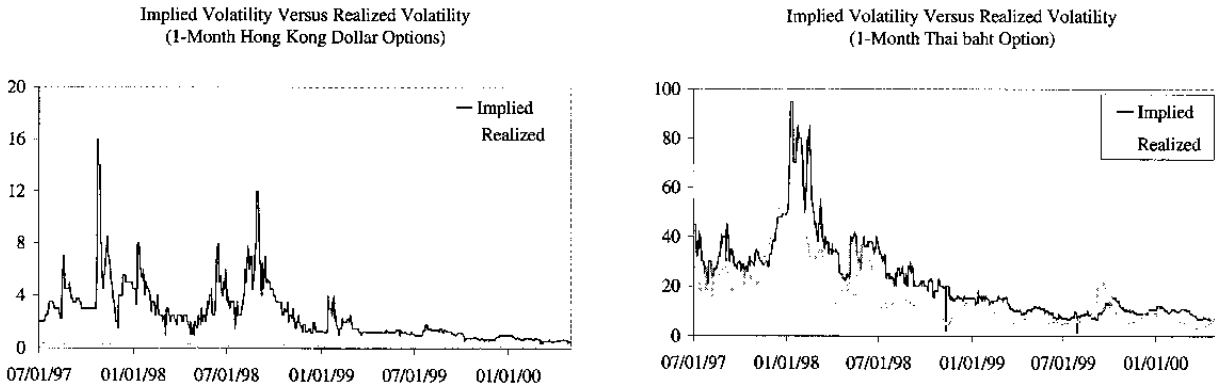
⁴Using:

$$\sigma_{i,T} = a + b_1\sigma_i^{IV} + b_2\sigma_i^{HV} + \varepsilon_{i,T},$$

(continued)

explains a large amount of the variation of realized volatility in both the Hong Kong dollar and Thai baht, it consistently exceeds realized volatility and confirms the bias found elsewhere in the literature. In particular, implied volatility exceeds realized volatility by far more in Hong Kong SAR than in Thailand, reflecting the success of the Hong Kong dollar peg, i.e., while the currency remained stable, the implied volatility varied with market sentiment. In the less rigid exchange rate regime of the Thai baht, implied volatility was a relatively more accurate predictor of future realized volatility.

11. **Implied volatility tends to exceed realized volatility, at times by a large margin, as discussed in the previous paragraph.** Prices of put and call options are an increasing function of the implied volatility of the asset. Thus, if implied volatility consistently exceeds realized volatility, option buyers are consistently paying more than the 'fair' price for options. While option markets on a few underlying securities markets may be sufficiently concentrated for option writers to earn excessive profits, it is unlikely to be the explanation in a market, like that for Hong Kong dollar, where market entry is very open.



12. **Asset price volatility is however, not constant over time.** Time-varying volatility exposes the option writer—who assumes an unlimited loss potential—to the risk that volatility changes may adversely affect his position, and thus she needs to be compensated for taking on this volatility risk. As a result, there will be a risk premium that is implicit in the observed market price—the implied volatility, very much like the risk premium in the forward market, which drives a wedge between the forward rate and the anticipated rate of domestic currency depreciation. Thus, the volatility risk premium needs to be removed from the implied volatility to arrive at what the market expects to be the future volatility:

$$E[\sigma_{RV}] = \sigma_{IV} - \sigma_{VP},$$

where σ_t^{HV} denotes the historical volatility, it was also tested whether the predictive power of implied volatility was greater than that of historical volatility.

where $E[\sigma_{RV}]$ is the anticipated future realized volatility, σ_{IV} is the implied volatility, and σ_{VP} is the volatility risk premium the option writer needs to be paid in order to take on volatility risk. Assuming rational expectations, we can extract the volatility risk premium ex post:

$$E[\sigma_{RV}] = \sigma_{RV} = \sigma_{IV} - \sigma_{VP}.$$

Accounting for the volatility risk premium, the equation needs to be reformulated:

$$\sigma^{RV}_t = \alpha + \beta_1 \sigma_t^{IV} + \beta_2 \sigma_t^{VP} + \varepsilon_{t,T},$$

where $\beta_2 < 0$. Substituting for the volatility risk premium and re-arranging the equation the following result obtains:

$$\sigma^{RV} = \frac{\alpha}{1 + \beta_2} + \left(\frac{\beta_1 + \beta_2}{1 + \beta_2} \right) \sigma^{IV} + \frac{\varepsilon}{1 + \beta_2}$$

Thus, there is a downward bias in the coefficients of the predictability equations:

$$\alpha = a(1 + \beta_2) \text{ and } \beta_1 = b + (b - 1)\beta_2,$$

where a and b are the coefficients from the predictability equation in paragraph 10. Since $\beta_2 < 0$, and $b < 1$, it follows that the regression coefficients in Table IV.1 are smaller than they would be if the volatility risk premium had been accounted for.

13. **Two measures of volatility risk premium were considered:** first, the volatility of implied volatility, in market parlance also known as “vol of vol,” and second, the bid-ask spread of implied volatility. Traders pay close attention to the vol of vol as it generates much of the risk in portfolios containing options. For both the Hong Kong dollar and the Thai baht, the bid-ask spread turned out to be a better proxy for volatility premium.⁵ While the bid-ask spread is a good predictor of the volatility risk premium, it should be noted that it is also affected by the liquidity in the market.

14. **Adjusting for volatility premium, however, improved the usefulness of implied volatility in predicting actual volatility only marginally for the Hong Kong dollar.**

⁵The coefficient of the bid-ask spread, while, different from 1 at the 5 percent significance level, which is a sign of good approximation, was substantially closer to unity than the volatility of implied volatility (Table IV.2).

However, it had a sizable impact on the Thai baht (Table IV.3), which operated under more flexible exchange rate arrangement.

D. Adjusting for Risk Aversion

15. **The extracted probability distributions, after adjusting for the market's risk aversion generally reveal a higher implied probability of a devaluation.** This can be gleaned from the fact that the adjusted probability distributions are mostly shifted to the right of the unadjusted ones (Charts IV.1 and IV.2).⁶ Also the dispersion of the adjusted probability distributions are larger, indicating a higher degree of uncertainty about future outcomes.

16. **Importantly, the adjusted probability distributions indicate that the impact of August 1998 intervention in calming market sentiment was muted.** The changes in the means of the implied distributions after intervention dates were smaller in the risk-adjusted case than in the unadjusted case. At the same time, the standard deviation for risk-adjusted implied distributions did not decline by as much after intervention as it did in the unadjusted case. Thus, the market was not as reassured after the intervention as would be apparent by just considering risk unadjusted probability distribution.

E. Conclusion

17. **This chapter showed how using the entire spectrum of market beliefs could be beneficial in analyzing expected exchange rate changes.** Given its easy availability, economists generally rely on the *average* market view—as proxied by the forward exchange rate premium—to study market beliefs about future exchange rate changes. However, as demonstrated in this chapter, extracting the entire probability distribution of expected exchange rate changes is easily implementable and not excessively demanding on data requirements either. The chapter also discussed a methodology that controlled for the risk aversion in the market in extracting exchange rate probabilities from option data, thus generating a probability distribution that was closer to the true function. Using the extracted distributions, it was shown that in the immediate aftermath of the August 1998 intervention by the Hong Kong SAR authorities, market sentiments did calm down, but to smaller extent than revealed by changes in the forward exchange rate premium alone.

⁶The exchange rate probability distributions were extracted by adjusting the quoted implied volatility for the market risk aversion using the bid-ask spread as a proxy. However, since only the bid-ask spread around the at-the-money implied volatility was available, it was assumed for the exercise that the spread remained constant over other implied volatilities. In practice, it is likely that the bid-ask spread increases the further away from the money the quote is, which would strengthen the results of this exercise.

Box IV.1. Extracting the Risk-Neutral Probability Distribution from Currency Options

The market price of a European call option, $c(t, X, T)$, is the difference between the expected value of the future exchange rate and the exercise price, with the probability weights drawn from the risk-neutral distribution, $\pi(x)$:

$$c(t, X, T) = e^{-r\tau} E^* [\max(S_T - X)] = e^{-r\tau} \int_X^\infty (S_T - X) \pi(S_T) dS_T,$$

where X is the exercise price, t and T are the current and option maturity dates, $\tau \equiv T - t$, r is the risk-free interest rate, S_t is the asset price at time t , E^* is the expectation operator taken under the risk-neutral probability distribution, and $\int_a^b \pi(S_T) dS_T \equiv P^*(a \leq S_T \leq b)$, where P^* denotes a risk-neutral probability. Notice that all variables in equation (1) are observable, except for the risk neutral distribution, which is to be identified. Akin to the way the risk-neutral probabilities change as market conditions fluctuate (case 2, Box 1), $\pi(X)$ it is the set of probabilities that changes as other observable variables change, so as to equate both sides of the equation.

In order to uncover the risk-neutral probability distribution, we twice differentiate the price of the option with respect to the exercise price:

$$\frac{dc(t, X, T)}{dX} = -e^{-r\tau} [1 - \Pi(x)]$$

where $\Pi(x) \equiv P^*(S_T \leq x)$ is the risk neutral cumulative distribution function and

$$\frac{d^2c(t, X, T)}{dX^2} = e^{-r\tau} \pi(X).$$

Theoretically, one could trace out the entire probability distribution using options with a series of very closely spaced exercise prices. In practice, only a few strike prices are observable, typically at least one for at-the-money, out-of-the money and in-the-money options. Given the scarcity of data, one possible solution is to assume that the risk-neutral probability distribution of the future asset price belongs to a particular parametric family. An alternative involving less restrictive assumptions uses over-the-counter options market data to interpolate between observable strike prices. A detailed procedure which effectively fits a polynomial function through the observed points to extract the probability distribution implied by a set of option prices is described in Malz (1997) and applied in this paper.

Box IV.2. Risk Neutrality

To understand the concept of risk neutrality consider the following example. Suppose a non-profit bookmaker accepting bets on both teams in a football game knows that the true probabilities that each team wins are equal, i.e., half. However, among the 10 people placing bets opinions are divided differently. Eight people would like to bet that team A wins and two people are convinced that team B wins. If the bookmaker were to accept bets based on the true probabilities—paying out \$2 for every successful and \$0 for every unsuccessful \$1 bet—he may incur a \$6 loss if team A wins: He needs to pay out \$16 on the winning bets, but received only \$10 for all bets placed (Table 1). If team B wins, the bookmaker would make a profit of \$6, as he only needs to pay out \$4 for the winning tickets from the \$10 collected (Case 1). While on average the bookmaker would break even if the game is repeated several times, he bears the risk for any individual game.

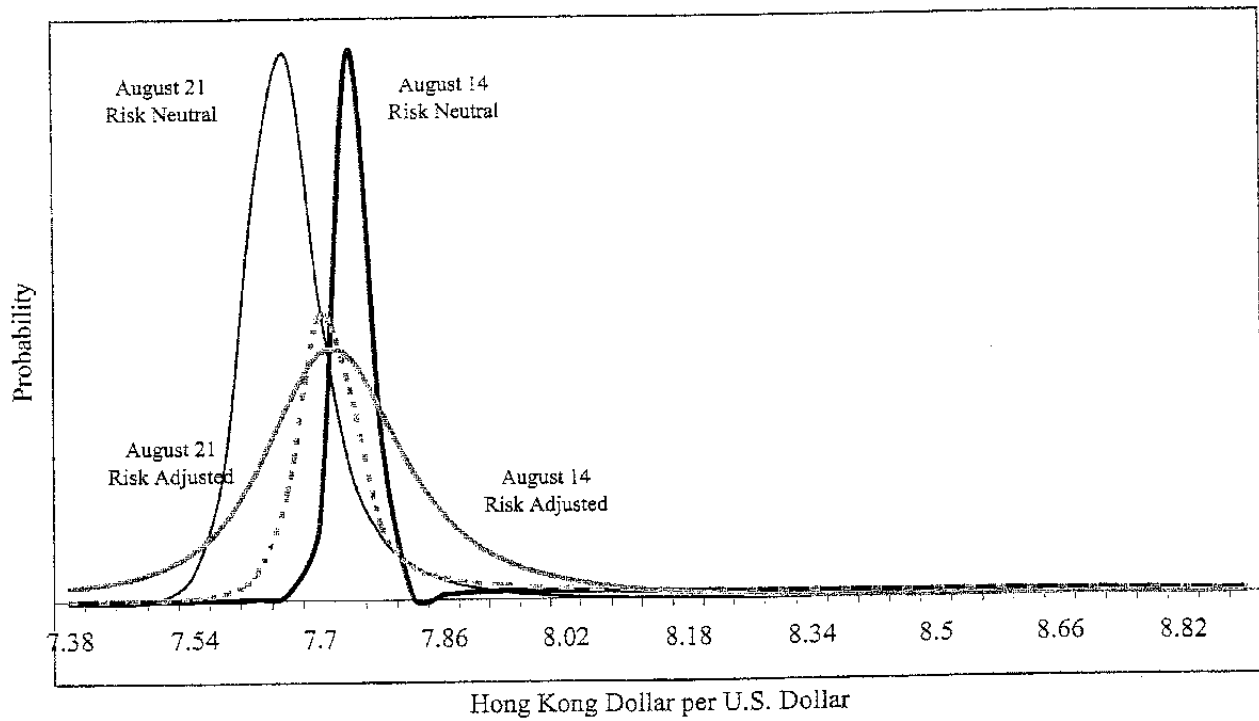
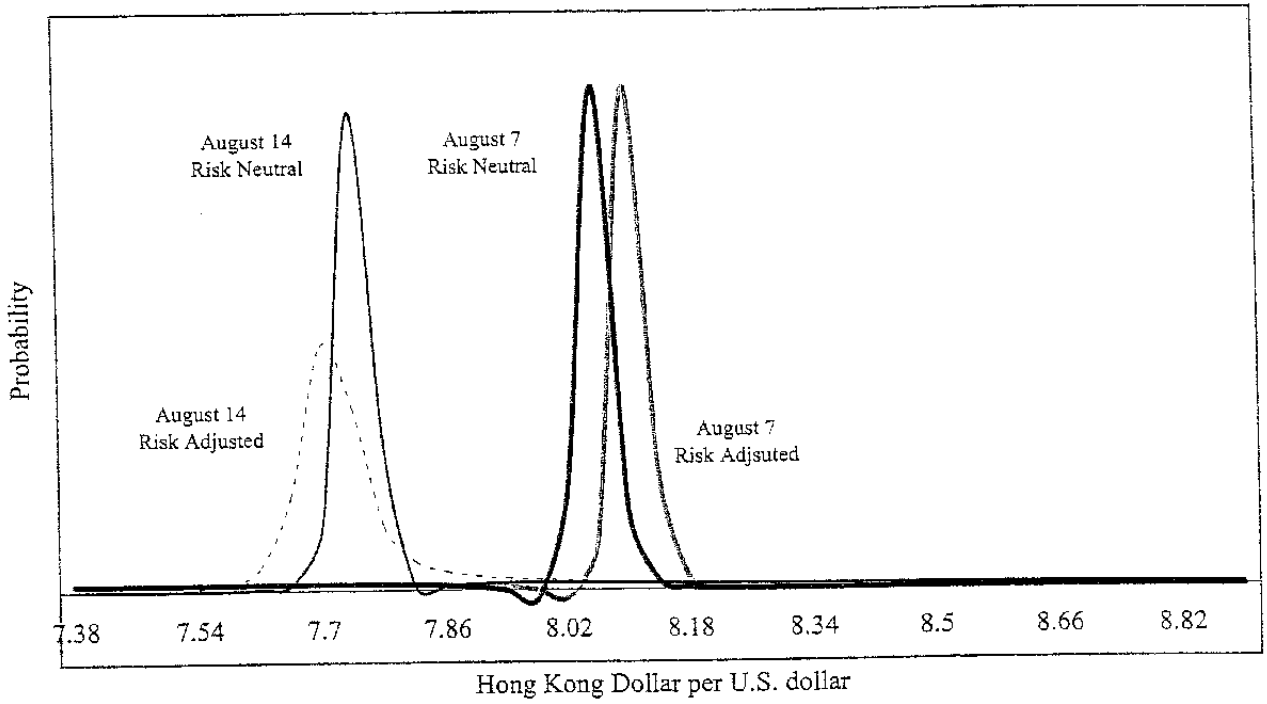
In order to break even for each game and thus not bear any risk, the market maker may adjust the payout ratios to reflect aggregate risk preferences in the “market.” In this case, he would pay only \$1.25 on the popular bet that team A wins, but would reward the successful bet on team B with \$5. Adjusting the payouts such that the bookmaker has a riskless position ensures that he always breaks even: If team A wins, his payout ($\$1.25 \times 8$ bets) is exactly covered by his revenue (\$10). If team B wins, his payout ($\$5 \times 2$ bets) is again covered by the wagers received (\$10—Case 2). The relative supplies of bets on the two teams prescribes the “market consensus” and implies the risk-neutral probabilities of victory—80 percent for team A and 20 percent for team B. However, these expectations differ from the true probabilities. Note that the term risk neutrality does not imply that market participants are risk neutral—in general, they are not. Instead, risk neutrality in this context simply means that the calculated probabilities are not adjusted for risk; they are exactly the probabilities that a risk-neutral person would apply.

Suppose the bookmaker cannot know for sure how many people will actually place bets, thus raising the possibility that he may have an unhedged position. In order to prevent losses in the long run, he charges a premium of 25 cents per bet to cover his risk (Case 3). The probabilities implied by this pricing structure sum to more than 100 percent. However, knowing the risk premium charged by the market maker enables us to uncover the true probabilities.

Table 1. Implied Probabilities in Hypothetical Bet

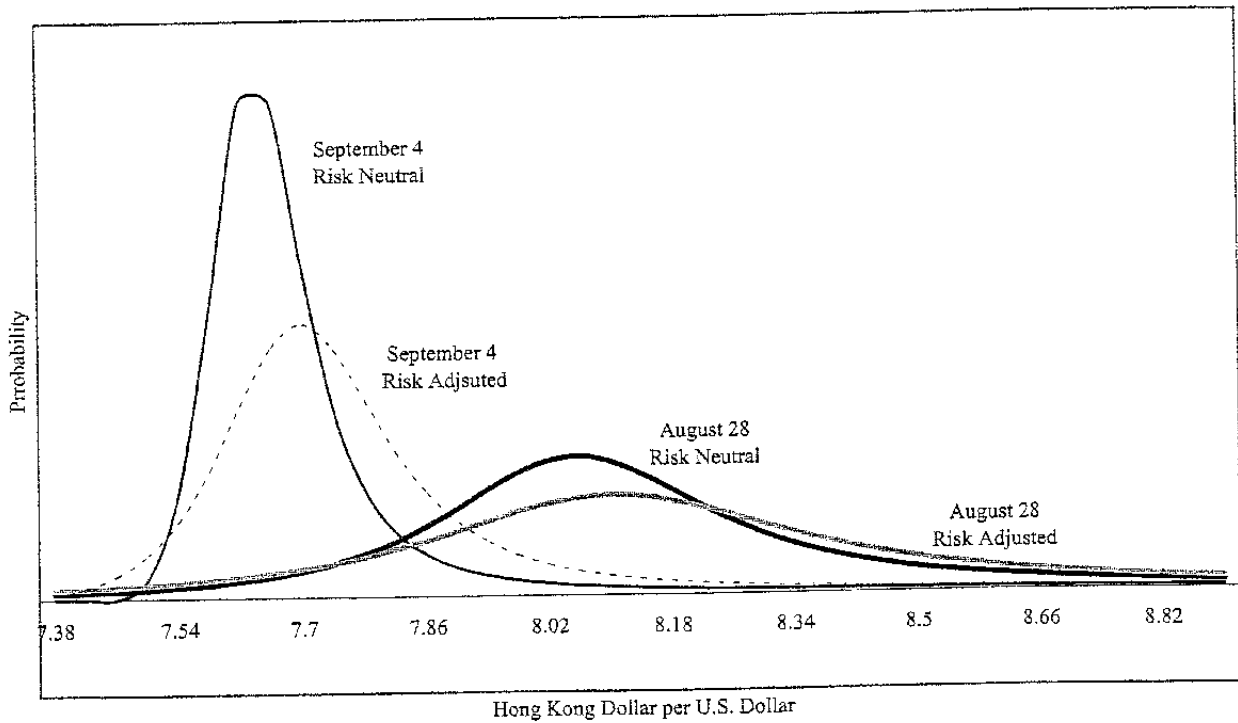
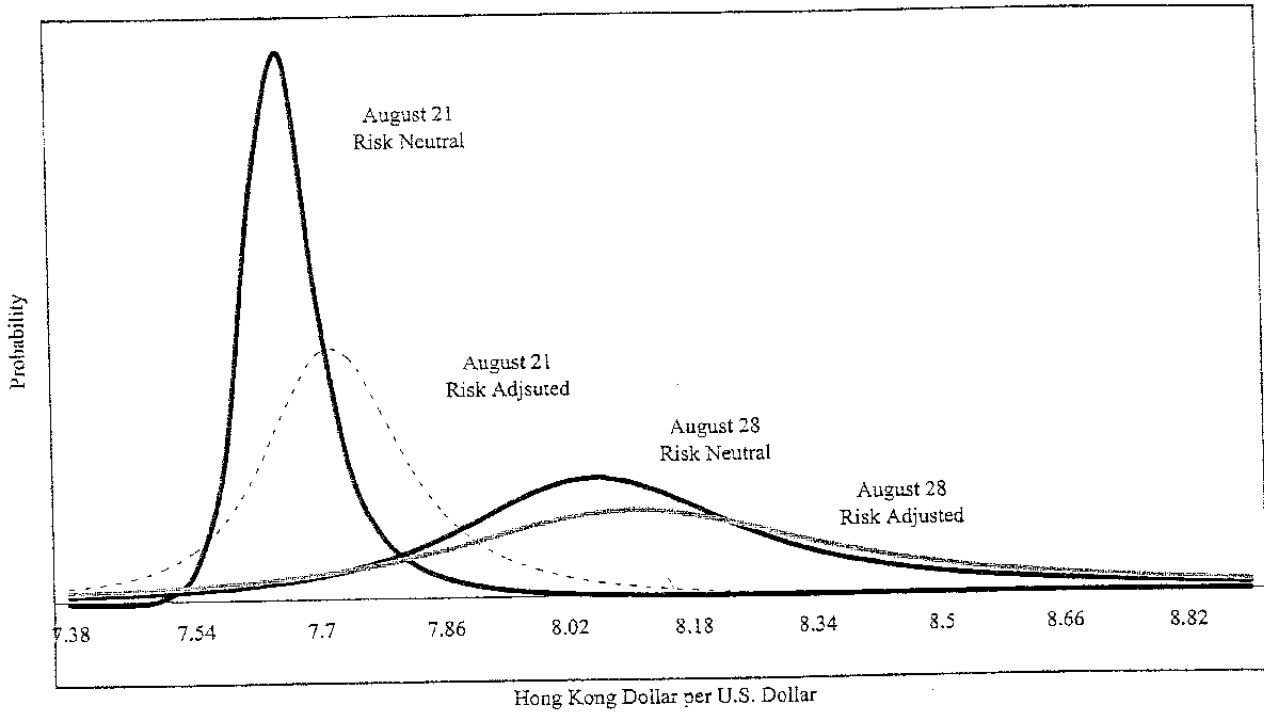
		Team A wins	Team B wins	Implied Probability	
				Team A	Team B
<i>Case 1:</i> Market maker uses true probabilities	Payout	$\$2 \times 8 \text{ bets} = \16	$\$2 \times 2 \text{ bets} = \4	50%	50%
	Profit	-\$6	+\$6		
<i>Case 2:</i> Market maker uses risk neutral probabilities	Payout	$\$1.25 \times 8 \text{ bets} = \10	$\$5 \times 2 \text{ bets} = \10	80%	20%
	Profit	\$0	\$0		
<i>Case 3:</i> Market maker charges a risk premium	Payout	$\$1.75 \times 8 \text{ bets} = \14	$\$1.75 \times 2 \text{ bets} = \3.5	57%	57%
	Profit	-\$4	+\$6.5		
	Risk premium	$\$0.25 \times 10 \text{ bets} = \2.5		50%	50%

Chart IV.1. Impact of the August 14 Intervention on Market Beliefs



Source: Staff estimates.

Chart IV.2. Impact of August 28 Intervention on Market Beliefs



Source: Staff estimates.

Table IV.1. Forecasting Realized Volatility
(Dependent Variable is Realized Volatility)

Constant	Implied Volatility++	Historical Volatility	Adj. R ²	Number of Observations
<i>Hong Kong dollar</i>				
<i>1 month</i>				
0.07*	0.07+		0.36	604
0.16*		0.23+	0.09	958
0.08*	0.08+	-0.11+	0.38	604
<i>3 month</i>				
0.08*	0.05+		0.56	604
0.13*		0.39+	0.24	958
0.07*	0.05+	0.02+	0.56	604
<i>1 year</i>				
0.13*	0.02+		0.19	578
0.46*		-0.38+	0.16	795
0.51*	0.02+	-0.93+	0.50	578
<i>Thai baht</i>				
<i>1 month</i>				
6.74*	0.51+		0.45	305
4.19*		0.66+	0.44	1133
7.15*	0.53+	-0.03+	0.45	305
<i>3 month</i>				
17.77*	0.24+		0.09	305
7.42*		0.49+	0.24	1062
23.18*	0.26+	-0.19+	0.13	305
<i>1 year</i>				
26.06*	-0.17+		0.06	305
28.08*		-0.42+	0.20	671
60.15*	0.14+	-1.45+	0.60	305

Source: Staff estimates.

++ Implied volatility at ask price.

Table IV.2. Factors Affecting Volatility Risk Premium
 (Dependent Variable is Realized Volatility Risk Premium)

Constant	Vol of Vol	Bid-Ask Spread	Adj. R ²	Number of Observations
<i>Hong Kong dollar</i>				
<i>1 month</i>				
0.44*	0.00	1.17*	0.82	719
0.42*		1.17*	0.82	741
<i>3 month</i>				
0.00	0.05*	1.58*	0.70	676
0.22*		1.99*	0.69	741
<i>1 year</i>				
4.87*	0.10*	0.08*	0.20	481
8.52*		0.18*	0.02	578
<i>Thai Baht</i>				
<i>1 month</i>				
0.94*	-0.04*	1.33*	0.59	719
0.44*		1.08*	0.56	741
<i>3 month</i>				
0.75*	-0.09*	1.88*	0.72	676
-0.76*		1.19*	0.46	741
<i>1 year</i>				
5.81*	-0.14*	2.32*	0.73	481.00
-2.38*		1.55*	0.42	546.00

Source: Staff estimates.

(Dependent Variable is Realized Volatility)

Constant	Implied Volatility++	Historical Volatility	Bid-Ask Spread	Adj. R ²	Number of Observations
<i>Hong Kong dollar</i>					
<i>1 month</i>					
0.08*	0.08+	-0.11+		0.38	604
0.08*	0.08+		-0.12+	0.37	604
<i>3 month</i>					
0.07*	0.05+	0.02+		0.56	604
0.05*	0.04+		0.06+	0.56	604
<i>1 year</i>					
0.51*	0.02+	-0.93+		0.50	578
0.14*	0.02+		0.00+	0.21	578
<i>Thai Baht</i>					
<i>1 month</i>					
7.15*	0.53+	-0.03+		0.45	305
3.89*	0.86+		-0.94	0.53	305
<i>3 month</i>					
23.18*	0.26+	-0.19+		0.13	305
13.83*	0.72+		-1.24	0.22	305
<i>1 year</i>					
60.15*	0.14+	-1.45+		0.60	305
27.00*	-0.39+		0.57+	0.08	305

Source: Staff estimates.

+ Significantly different from unity at 5 percent level.

++ Implied volatility at ask price.

Table 1. Hong Kong SAR—Gross Domestic Product by Expenditure
Component at Current Market Prices, 1996–2000 Q3

	1996	1997	1998	1999	2000 Jan-Sep.
	(In billions of Hong Kong dollars)				
Consumption	826.5	912.2	880.1	856.3	642.9
Private	722.1	798.4	762.3	734.8	551.2
Government	104.4	113.7	117.8	121.5	91.6
Gross fixed capital formation	372.3	445.0	383.2	316.7	244.9
Private	308.4	382.3	323.8	252.7	200.3
Government	63.9	62.7	59.4	64.0	44.6
Final domestic demand (excluding change in inventories)	1,198.8	1,357.2	1,263.3	1,173.0	887.7
Change in inventories	9.8	12.3	-15.7	-5.8	19.0
Total domestic demand	1,208.6	1,369.5	1,247.7	1,167.2	906.8
Net exports of goods and nonfactor services	-16.7	-45.6	13.8	66.0	34.3
Exports of goods and nonfactor services	1,694.1	1,754.1	1,628.4	1,642.7	1,394.8
Exports of goods	1,397.9	1,455.9	1,347.7	1,349.0	1,153.2
Domestic exports	212.2	211.4	188.5	170.6	136.2
Reexports	1,185.8	1,244.5	1,159.2	1,178.4	1,017.0
Exports of nonfactor services	296.2	298.2	280.8	293.7	241.6
Imports of goods and nonfactor services	1,710.8	1,799.7	1,614.6	1,576.7	1,360.5
Imports of goods	1,539.9	1,619.5	1,432.4	1,395.5	1,221.0
Of which:					
Retained imports	555.0	592.1	486.7	453.5	407.9
Imports of nonfactor services	170.9	180.3	182.2	181.2	139.6
Factor income inflows	392.7	469.0	362.7	366.9	213.6
Factor income outflows	392.5	458.6	334.0	339.6	294.1
Net factor income flows	0.2	10.5	28.8	27.3	18.5
Gross national product	1,192	1,334	1,209	1,260	960
Gross domestic product	1,192	1,325	1,261	1,233	941
	(In percent of GDP)				
Memorandum items:					
Consumption	69.3	68.9	69.8	69.4	68.3
Gross fixed capital formation	31.2	33.6	30.4	25.7	26.0
Total domestic demand	101.4	103.4	98.9	94.7	96.4
Net exports of goods and nonfactor services	-1.4	-3.4	1.1	5.3	3.6

Sources: Census and Statistics Department, *Annual Report of Gross Domestic Product*; *Quarterly Report of GDP*.

Table 2. Hong Kong SAR—Gross Domestic Product by Economic Activity at Current Prices, 1995–99

	1995	1996	1997	1998	1999
	(In billions of Hong Kong dollars)				
Agriculture and fishing	1.5	1.4	1.5	1.5	1.1
Mining and quarrying	0.3	0.3	0.3	0.3	0.3
Manufacturing	84.8	82.8	80.0	70.8	65.6
Electricity, gas, and water	23.6	27.0	29.2	33.5	34.4
Construction	54.8	65.1	71.7	69.9	64.7
Wholesale, retail and import/export trades, restaurants and hotels	270.5	301.2	313.3	288.1	284.7
Transport, storage, and communications	102.2	111.1	112.8	109.5	110.1
Financing, insurance, real estate, and business services	248.0	284.1	322.6	282.7	269.8
Community, social, and personal services	176.0	199.0	220.5	233.0	247.4
Ownership of premises 1/	134.9	147.5	171.4	171.0	169.7
Adjustment for financial intermediation services (indirectly measured) 2/	-80.4	-89.4	-90.2	-89.4	-93.5
Gross domestic product at factor cost (production-based GDP)	1016.1	1130.2	1233.0	1171.0	1154.3
Taxes on production and imports	53.0	62.4	85.0	62.5	55.8
Gross domestic product at market prices (production-based GDP) 3/	1069.1	1192.7	1318.0	1233.5	1210.1
	(In percent of GDP)				
Memorandum items: 4/					
Manufacturing	8.3	7.3	6.5	6.1	5.7
Wholesale, retail and import/export trades, restaurants and hotels	26.6	26.7	25.4	24.6	24.7
Financing, insurance, real estate, and business services	24.4	25.1	26.2	24.1	23.4
Transport, storage, and communications	10.1	9.8	9.2	9.4	9.5

Sources: Census and Statistics Department, *Annual Report of Gross Domestic Product* and *Quarterly Report of GDP*.

1/ An imputed rental charge for owner-occupied premises.

2/ An imputed service charge, equal to net interest receipts for financial intermediaries (e.g., banks).

3/ Difference between production-based GDP and expenditure-based GDP figures reflects statistical discrepancy.

4/ Measured relative to production-based GDP at factor cost.

Table 3. Hong Kong SAR—Gross Fixed Capital Formation, 1996–2000 Q3

	1996	1997	1998	1999	2000 Jan-Sep.
	(In billions of Hong Kong dollars, at current market prices)				
Gross domestic fixed capital formation	372.3	445.0	383.2	316.7	244.9
Private	308.4	382.3	323.8	252.7	200.3
Public	63.9	62.7	59.4	64.0	44.6
Construction	117.7	134.4	138.2	126.0	85.2
Private	62.2	81.3	87.3	70.9	46.3
Public	55.5	53.1	50.9	55.3	38.9
Machinery and equipment	164.5	183.8	157.5	133.8	124.7
Private	156.1	174.3	149.6	125.0	119.0
Public	8.4	9.6	8.5	8.7	5.7
Transfer costs of land and buildings	22.2	37.9	15.3	12.0	8.9
Real estate developers' margin	67.9	88.8	72.2	44.1	26.1
	(Share in total, in current prices)				
Private capital formation	82.8	85.9	84.5	79.8	81.8
Public capital formation	17.2	14.1	15.5	20.2	18.2
Construction	31.6	30.2	36.1	39.8	34.8
Machinery and equipment	44.2	41.3	41.1	42.2	50.9
Transfer costs of land and buildings	6.0	8.5	4.0	3.8	3.6
Real estate developers' margin	18.2	20.0	18.8	13.9	10.7
	(Percentage change, in constant prices)				
Gross domestic fixed capital formation	10.8	12.7	-7.5	-17.3	7.6
Private	9.6	16.6	-7.0	-20.4	10.9
Public	17.1	-5.7	-10.4	1.3	-7.8
Private investment in construction	5.7	17.0	-1.4	-19.0	-11.3
Private investment in machinery and equipment	10.2	13.0	-8.4	-19.9	27.8

Sources: Census and Statistics Department, *Annual Report of Gross Domestic Product*, *Quarterly Report of GDP*.

Table 4. Hong Kong SAR—Estimates of External Factor Income Flows
by Income Component and by Business Sector, 1995–99

(At current market prices, in millions of Hong Kong dollars)

Type of Income Components	1995	1996	1997	1998	1999
Direct investment Income					
Inflow total	112,810	125,557	193,093	124,999	133,369
Banking	7,558	9,082	9,556	13,352	9,551
Others	105,252	116,474	183,537	111,647	123,818
Outflow total	177,942	201,267	244,884	136,350	204,108
Banking	61,630	59,530	52,689	51,934	71,179
Others	116,312	141,737	192,195	84,416	132,929
Portfolio investment income					
Inflow total	78,575	84,583	96,494	74,444	91,035
Banking	24,300	23,828	26,567	17,926	17,509
Others	54,276	60,755	69,927	56,518	73,525
Outflow total	24,089	28,333	40,646	24,696	26,583
Banking	4,171	5,961	10,643	4,988	4,247
Others	19,918	22,372	30,003	19,708	22,337
Other investment income					
Inflow total	201,623	182,032	178,790	162,913	142,403
Banking	192,710	172,104	164,467	153,528	129,506
Others	8,913	9,928	14,323	9,385	12,897
Outflow total	170,466	162,385	172,373	172,548	108,839
Banking	162,310	150,885	160,055	158,525	99,371
Others	8,156	11,500	12,318	14,023	9,468
Compensation of employees					
Inflow total	270	549	657	363	112
Outflow total	270	549	657	363	112
Banking	45	13	28	3	4
Others	225	536	629	360	108
Total external factor income flows					
Inflow total	393,278	392,721	469,034	362,719	366,919
Banking	224,568	205,015	200,590	184,806	156,566
Others	168,710	187,706	268,444	177,913	210,354
Outflow total	372,767	392,534	458,560	333,957	339,642
Banking	228,156	216,389	223,415	215,447	174,801
Others	144,611	176,145	235,145	118,510	164,842
Net flow total	20,511	188	10,475	28,762	27,276
Banking	-3,589	-11,374	-22,824	-30,643	-18,234
Others	24,099	11,562	33,299	59,405	45,510

Source: Census and Statistics Department, *Hong Kong Annual Digest of Statistics and Hong Kong Monthly Digest of Statistics*.

Table 5. Hong Kong SAR—Selected Price Indicators, 1996–2000 Q3

(Percentage changes)

	Weight in the Index (Percent)	1996	1997	1998	1999	2000		
						Q1	Q2	Q3
Composite CPI	100.0	6.3	5.8	2.8	-4.0	-5.1	-4.5	-2.8
Food—overall	29.5	3.9	3.6	1.9	-1.8	-2.6	-2.6	-2.3
Meals away from home	18.2	3.9	4.0	2.2	-1.2	-1.1	-1.1	-0.9
Excluding meals away from home	11.3	3.9	3.0	1.5	-2.8	-5.1	-5.1	-4.4
Housing	28.8	10.1	9.1	4.7	-5.1	-10.3	-9.9	-6.4
Fuel and light	2.4	5.3	5.6	1.6	-0.4	3.5	6.4	3.1
Alcohol and tobacco	1.4	5.7	5.6	6.6	1.2	-2.6	-1.8	0.2
Clothing and footwear	6.7	8.3	8.4	-0.8	-20.6	-12.6	-10.3	-9.7
Durable goods	5.5	1.9	2.2	0.2	-6.3	-6.5	-4.8	-1.8
Miscellaneous goods	6.1	2.7	5.4	2.6	-0.7	-0.9	0.7	1.8
Transportation and vehicles	7.8	6.2	4.0	3.9	0.5	0.3	0.6	1.6
Miscellaneous services	11.9	6.1	4.5	2.7	-1.3	-1.1	-0.1	0.6
CPI (A)	100.0	6.0	5.7	2.6	-3.3	-4.1	-3.4	-2.0
Residential price index	...	9.6	40.9	-28.8	-14.0	-5.7	-12.5	-12.9
GDP deflator 1/	...	5.9	5.8	0.6	-5.2	-7.0	-7.6	-6.6
Domestic demand deflator 1/	...	4.2	4.7	0.9	-1.6	-6.9	-5.8	-5.4
Export prices 1/								
Goods deflator	...	-0.7	-1.9	-3.3	-3.4	-1.9	-0.6	-0.4
Services deflator	...	1.7	0.8	-4.1	-3.0	-2.0	-0.6	-0.6
Import prices 1/								
Goods deflator	...	-1.3	-1.9	-4.7	-2.7	-0.8	0.0	1.2
Services deflator	...	1.2	1.4	-1.6	-0.8	-1.1	0.2	0.3

Sources: Census and Statistics Department, Monthly Report on the *Consumer Price Index*, *Hong Kong Monthly Digest of Statistics*, *Quarterly Report of GDP*, Rating and Valuation Department.

1/ Data are on a national accounts basis.

Table 6. Hong Kong SAR—Labor Force, Employment, and Unemployment, 1995–2000 Q3

	1995	1996	1997	1998	1999	2000		
						Q1	Q2	Q3
(In thousands)								
Labor force 1/ 2/	3,001	3,182 *	3,264 *	3,306 *	3,342 *	3,353 *	3,377	3,395
Employed 2/	2,905	3,093 *	3,192 *	3,150 *	3,133 *	3,169 *	3,207	3,227
Unemployed 2/	96	89 *	73 *	155 *	209 *	185 *	170	168
(In percent)								
Unemployment rate 2/ 3/	3.2	2.8 *	2.2 *	4.7 *	6.3 *	5.6 4/	5.0 4/	4.8 4/
Labor force participation rate 2/	62.0	61.6 *	61.2 *	61.1 *	60.9 *	60.5 *	60.7	60.8
(Percent changes)								
Labor force growth 2/	2.4	3.1 **	2.6 *	1.3 *	1.1 *	0.9 *	0.8	1.8
Employment growth 2/	1.1	3.5 **	3.2 *	-1.3 *	-0.5 *	1.7 *	1.9	3.4
(In percent of total employed)								
Employment in selected sectors 5/								
Manufacturing	15.0	12.7	11.7	10.6	10.0	9.5	9.5	9.1
Financing, insurance, real estate, and business services	15.1	15.5	16.6	16.9	17.0	16.8	17.1	17.3
Trade and tourism 6/	40.6	41.3	40.5	39.4	41.1	41.7	41.4	41.7
Building and construction 7/	2.7	3.2	3.4	3.1	2.9	3.0	3.2	3.2
Community, social, and personal services	12.0	12.5	12.8	14.1	13.8	14.0	13.8	13.8
Transportation, storage, and communications	6.9	7.1	7.2	7.3	7.1	7.1	7.2	7.3
Civil service	7.2	7.2	7.5	8.2	7.7	7.5	7.4	7.3

Sources: Census and Statistics Department, *Hong Kong Monthly Digest of Statistics, Dec. 2000; Quarterly Report on General Household Survey, July to September 2000.*

1/ General Household Survey.

2/ Since August 2000, the "resident population" approach has been adopted in place of the "extended de facto" approach for compiling population estimates and revised population figures backdated to 1996 have been compiled. In the above table, statistics which are population-related have been revised accordingly and annotated with *. However, as regards the growth rates marked with **, they are still derived from figures obtained based on the old approach since the figures for 1995 under the "resident population" method are not available. For details of the revision to the method of compiling population estimates of Hong Kong, please see the feature article entitled "Revision to the Method of Compiling Population Estimates of Hong Kong" published in the September 2000 issue of the *Hong Kong Monthly Digest of Statistics* or visit the website of the Census and Statistics.

3/ The quarterly unemployment rate is seasonally adjusted, while seasonally adjustment is not applicable to annual average unemployment rate.

4/ Seasonally adjusted unemployment rates.

5/ Based on data on persons engaged by industry sector, Quarterly Survey of Employment and Vacancies.

6/ Wholesale, retail, import and export trade, restaurants, and hotels.

7/ Refers to manual workers at construction sites only.

Table 7. Hong Kong SAR—Wages, Labor Productivity,
and Unit Labor Costs, 1995–2000 Q3

(Percentage change) 1/

	1995	1996	1997	1998	1999	2000 1/
Nominal wages 2/						
Overall economy	7.0	6.4	7.0	2.2	-0.8	1.1
Manufacturing	5.6	7.5	5.3	0.8	-0.6	2.2
Trade and tourism 3/	7.2	5.0	7.8	1.3	-0.2	1.3
Financial services 4/	8.1	8.4	7.4	4.3	-1.9	2.1
Real wages 2/						
Overall economy	-1.8	1.2	1.7	-0.1	4.3	3.3
Manufacturing	-3.1	2.2	0.0	-1.5	4.6	4.4
Trade and tourism 3/	-1.6	-0.1	2.3	-1.0	4.9	3.5
Financial services 4/	-0.7	3.0	2.1	1.8	3.2	4.3
Labor productivity 2/ 5/	...	...	1.7	-4.0	3.7	9.3
Unit labor costs 2/ 5/	...	...	5.3	6.5	-4.3	...

Sources: Census and Statistics Department, *Quarterly Report on Wage and Payroll Statistics*, September 2000, *Tables 1 and 2*; and staff estimates.

1/ Data on labor productivity are based on data for the first of September 2000. Percentage changes are calculated over third quarters' corresponding year-earlier periods.

2/ Based on September data.

3/ Includes wholesale, retail, import and export trades, restaurants, and hotels.

4/ Includes financing, insurance, real estate, and business services.

5/ Based on expenditure based real GDP and GHS annual employment data from the "resident population" approach; backdating to years prior to 1996 not feasible; data on person-hours are unavailable.

Table 8. Hong Kong SAR—Property Market Developments, 1995–2000 Q3 1/

	1995	1996	1997	1998	1999	2000		
						Q1	Q2 2/	Q3 2/
(1989 = 100)								
Price indices								
Private domestic premises	272	298	420	299	257	249	231	223
Of which:								
40 to 69.9 square meters	282	310	435	308	265	257	236	227
100 square meters and above	314	352	514	348	302	305	292	281
Private retail premises	277	287	382	275	214	210	201	192
Offices	188	184	206	130	97	93	88	81
Flatted factories	166	143	142	111	83	79	77	74
(Year-on-year percent change)								
Private domestic premises	-7.2	9.6	40.9	-28.8	-14.0	-5.7	-12.5	-12.9
Of which:								
40 to 69.9 square meters	-7.8	9.9	40.3	-29.2	-14.0	-5.5	-12.9	-14.3
100 square meters and above	-10.5	12.1	46.0	-32.3	-13.2	2.0	-4.9	-8.5
Private retail premises	-2.8	3.6	33.1	-28.0	-22.2	-2.3	-7.8	-10.7
Offices	-15.3	-2.1	12.0	-36.9	-25.4	-5.1	-10.2	-15.6
Flatted factories	-12.2	-13.9	0.9	-21.8	-25.2	-11.2	-7.2	-8.6
(1989 = 100)								
Rental indices								
Private domestic premises	174	171	194	161	144	141	141	140
Private retail premises	192	192	203	186	166	167	168	168
Offices	132	112	115	100	74	70	73	73
Flatted factories	131	118	118	106	89	86	86	83
(Year-on-year percent change)								
Private domestic premises	2.4	-1.7	13.5	-17.0	-10.6	-3.4	-2.1	-2.8
Private retail premises	0.0	0.0	5.7	-8.4	-10.8	0.0	2.4	2.4
Offices	-1.5	-15.2	2.7	-13.0	-26.0	-11.4	0.0	2.8
Flatted factories	-1.5	-9.9	0.0	-10.2	-16.0	-7.5	-3.4	-4.6

Sources: Census and Statistics Department, *Hong Kong Monthly Digest of Statistics*, Rating and Valuation Department; and CEIC database.

1/ Data are period averages.

2/ Provisional figures.

Table 9. Hong Kong SAR—Consolidated Government Account, 1995/96–2000/01 1/

	1995/96	1996/97	1997/98	1998/99	1999/00 Actual	2000/01 Budget
(In billions of Hong Kong dollars)						
General Revenue Account						
Revenue	153.2	173.9	220.1	170.4	157.1	172.7
Expenditure	123.3	138.5	162.4	179.7	178.2	198.5
Current	120.3	134.7	149.3	164.3	173.9	193.5
Capital	3.0	3.8	13.1	15.4	4.3	5.0
Surplus (+)/deficit (-) before transfers	29.9	35.4	57.7	-9.3	-21.1	-25.8
Transfers from (+)/to (-) funds	-32.5	-13.4	5.8	-6.3	-8.0	4.4
Balance after transfers	-2.6	22.0	63.5	-15.6	-29.1	-21.4
Consolidated Account Funds 2/						
Revenue 3/	26.8	34.5	55.0	35.7	54.5	53.8
Capital expenditure 4/	59.8	44.2	31.9	59.7	44.8	51.9
Surplus (+)/deficit (-) before transfers	-33.0	-9.7	23.1	-24.0	9.7	1.9
Transfers from (+)/to (-) General Revenue Account	32.5	13.4	-5.8	6.3	8.0	-4.4
Balance after transfers	-0.5	3.7	17.3	-17.7	17.7	-2.5
Total Consolidated Account						
Revenue	180.0	208.4	275.1	206.1	211.6	226.5
Changes in net worth of Land Fund	...	...	6.0	8.3	...	...
Land Fund Revenue	...	...	...	1.8	21.4	17.7
Consolidated revenue	180.0	208.4	281.1	216.2	233.0	244.2
Expenditure	183.1	182.7	194.3	239.4	223.0	250.4
Current	120.3	134.7	149.3	164.3	173.9	193.5
Capital	62.8	48.0	45.0	75.1	49.1	56.9
Surplus (+)/Deficit (-)	-3.1	25.7	80.8	-33.3	-11.4	-23.9
Consolidated Surplus (+)/Deficit (-)	-3.1	25.7	86.8	-23.2	10.0	-6.2
Fiscal reserves balance, end of fiscal year 5/	147.9	173.6	457.5 5/	434.3	444.3	438.1 6/
Memorandum item:						
Net borrowing 7/	...	...	...	...	...	...
(In percent of GDP)						
Total Consolidated Account						
Revenue	16.7	17.5	21.2	17.1	18.9	18.6
Expenditure	17.0	15.3	14.7	19.0	18.1	19.1
Current	11.2	11.3	11.3	13.0	14.1	14.8
Capital	5.8	4.0	3.4	5.9	4.0	4.3
Surplus (+)/Deficit (-)	-0.3	2.2	6.6	-1.8	0.8	-0.5
Fiscal reserves balance, end of fiscal year	13.7	14.6	34.6	34.4	36.0	33.4
Memorandum item:						
GDP at market prices	1,077	1,192	1,324	1,262	1,233	1,312
(Percentage change)						
Total Consolidated Account						
Revenue	2.9	15.8	34.9	-23.1	7.8	4.8
Expenditure	13.2	-0.2	6.3	23.2	-6.9	12.3
Current	13.5	12.0	10.8	10.0	5.8	11.3
Capital	12.5	-23.6	-6.3	66.9	-34.6	15.9
Fiscal reserves balance, end of fiscal year	-2.1	17.4	163.5	-5.1	2.3	-1.4

Sources: Data provided by the Government Secretariat, Finance Bureau.

1/ The fiscal year begins April 1.

2/ Consists of the Capital Works Reserve Fund; Capital Investment Fund and Loan Fund beginning 1990/91; Disaster Relief Fund beginning 1993/94; Civil Service Pension Reserve Fund beginning 1994/95 and Innovation and Technology Fund beginning in 1999/2000.

3/ Includes revenue from land sales.

4/ Includes direct financing of airport-related projects as well as government equity injections into the Airport Authority, the Mass Transit railway Corporation and the Kowloon-Canton Railway Corporation.

5/ From July 1, 1997, Land Fund is included.

6/ Balance of fiscal reserves adjusted to take account of outturn in previous year.

7/ The Government Bond Program was launched in November 1991 in an effort to develop a market in fixed-income securities and facilitate the funding of long-term government infrastructural projects. The bonds were issued before the government actually required the funds. The program limits the size of gross debt outstanding to HK\$5 billion as of June 30, 1997.

Table 10. Hong Kong SAR—Revenue (General Revenue Account), 1995/96–2000/01 1/

(In millions of Hong Kong dollars)

	1995/96	1996/97	1997/98	1998/99	1999/00 Actual	2000/01 Budget
Taxes	120,545	139,767	158,256	115,222	111,717	117,983
Direct taxes	78,696	85,476	93,112	76,983	68,186	65,375
Earnings and profits tax	77,419	83,966	91,524	75,746	66,914	64,125
Estate duty	1,277	1,510	1,588	1,237	1,272	1,250
Indirect taxes	41,849	54,291	65,144	38,239	43,531	52,608
Duties	7,899	8,450	8,465	7,698	7,377	7,579
General rates	5,806	6,285	6,258	3,614	7,132	13,910
Internal revenue	23,491	34,552	44,263	23,404	24,832	26,401
Bets and sweeps tax	11,051	12,191	13,453	12,228	11,938	11,650
Hotel accommodation tax	501	580	511	219	182	189
Stamp duties	11,215	20,461	29,097	10,189	12,116	14,038
Air passengers' departure tax	522	1,121	1,002	573	499	524
Cross Harbor Tunnel passage tax	202	199	200	195	97	...
Motor vehicles taxes	2,880	3,249	4,246	2,237	2,613	2,810
Royalties and concessions	1,773	1,755	1,889	1,286	1,577	1,898
Taxi concessions	0.0	0.0	23	0.0	0.0	10
Nontax revenue	32,649	34,090	61,885	55,171	45,387	54,752
Fines and penalties	1,607	1,592	1,566	1,333	1,093	1,111
Properties, investments, and interest	8,735	9,347	17,323	31,374	23,016	34,529
Of which: interest	5,910	5,616	8,976	21,568	15,390	9,660
Reimbursements and contributions	4,811	5,326	7,118	7,499	7,056	4,436
Utilities	7,199	6,608	6,735	4,400	3,326	3,291
Fees and charges	9,879	10,766	11,279	10,565	10,896	11,385
Land transactions 2/	418	451	17,864	...	...	...
Total Revenue	153,194	173,857	220,141	170,393	157,104	172,735
Transfer from Capital Works Reserve Fund	...	...	8,535	8,750	5,000	10,000
Total including transfers from Capital Works Reserve Fund	153,194	173,857	228,676	179,143	162,104	182,735

Source: Data provided by the Government Secretariat, Finance Bureau.

1/ The fiscal year runs from April 1 to March 31.

2/ Includes only land transactions completed before the coming into force of the Sino-British Joint Declaration (5/27/85), or land transactions conferring a benefit that expired before June 30, 1997. Revenue from other land transactions is credited to the Capital Works Reserve Fund. The only exception is for the period from July 1, 1997 to December 31, 1997, when land revenue was credited to General Revenue Account pending amendment of the Capital Works Reserve Fund resolution.

Table 11. Hong Kong SAR—Government Expenditure Under the General Revenue Account, 1995/96–2000/01 1/

(In millions of Hong Kong dollars)

	1995/96	1996/97	1997/98	1998/99	1999/00 Actual	2000/01 Budget
Current expenditure	120,284	134,737	149,386	164,277	173,913	193,548
Personal emoluments	34,832	37,404	40,114	44,092	46,488	52,388
Personnel-related expenses	11,304	12,853	13,617	12,103	13,289	15,219
Departmental expenses	6,199	7,062	8,067	8,935	10,184	14,921
Other charges	17,928	21,147	24,139	28,568	29,590	33,741
Subventions	50,021	56,271	63,449	70,579	74,362	77,279
Capital expenditure 2/	35,573	17,195	15,794	30,417	17,365	10,546
Plant, equipment, and works	581	616	852	790	1,372	1,336
Other nonrecurrent	1,619	1,116	11,180	13,129	2,008	2,437
Subventions	838	2,043	1,065	1,454	954	1,154
Transfers to funds	32,535	13,420	2,697	15,044	13,031	5,619
Capital Works Reserve Fund	11,500	6,390	...	...	...	...
Capital Investment Fund	19,500	3,500	...	9,000	8,000	3,600
Loan Fund	1,500	3,500	2,170	6,000	...	2,000
Disaster Relief Fund	35	30	27	44	31	19
Civil Service Pension Reserve Fund	...	...	500	...	...	...
Innovation and Technology Fund	...	...	...	...	5,000	...
Total expenditure	155,857	151,932	165,180	194,694	191,278	204,094

Source: Data provided by the Government Secretariat, Finance Bureau.

1/ The fiscal year runs from April 1 to March 31.

2/ Includes capital expenditure financed directly from the General Revenue Account (GRA) and transfers from the GRA to Consolidated Account Funds.

Table 12. Hong Kong SAR—Public Expenditure by Function, 1997/98–2000/01 1/

(In millions of Hong Kong dollars)

	1997/98			1998/99			1999/2000 Budget			1999/2000 Revised Estimates			2000/01 Budget		
	Recurrent	Capital	Total	Recurrent	Capital	Total	Recurrent	Capital	Total	Recurrent	Capital	Total	Recurrent	Capital	Total
Economic	10,021	7,043	17,064	10,225	11,196	21,421	11,417	4,697	16,114	10,604	2,429	13,033	11,061	3,459	14,520
Security	22,041	1,723	23,764	23,458	1,657	25,115	25,210	2,873	28,083	24,307	2,664	26,971	25,208	3,417	28,625
Internal security	17,348	1,486	18,834	18,230	1,304	19,534	19,376	2,375	21,751	18,681	2,373	21,054	19,334	2,912	22,246
Immigration	1,841	94	1,935	1,988	46	2,034	2,206	81	2,287	2,106	56	2,162	2,188	27	2,215
Other	2,852	143	2,995	3,240	307	3,547	3,628	417	4,045	3,520	235	3,755	3,686	478	4,164
Social services	46,369	3,323	49,692	54,117	3,660	57,777	59,234	4,244	63,478	57,281	3,427	60,708	60,545	4,188	64,733
Social welfare	20,337	1,373	21,710	25,327	1,050	26,377	29,073	1,625	30,698	27,259	1,130	28,389	29,757	1,362	31,119
Health	26,032	1,950	27,982	28,790	2,610	31,400	30,161	2,619	32,780	30,022	2,297	32,319	30,788	2,826	33,614
Education	36,663	10,364	47,027	40,892	7,587	48,479	43,983	11,203	55,186	43,361	8,891	52,252	45,178	9,205	54,383
Environment	7,270	5,807	13,077	7,931	5,415	13,346	3,471	2,450	5,921	8,456	4,220	12,676	8,634	3,400	12,034
Community and external affairs	6,314	1,798	8,112	6,841	1,791	8,632	12,510	3,851	16,361	7,478	2,264	9,742	7,353	1,895	9,248
Recreation, culture, and amenities	5,022	1,600	6,622	5,429	1,680	7,109	10,952	3,654	14,606	5,916	2,059	7,975	5,710	1,641	7,351
District and community relations	1,292	198	1,490	1,412	111	1,523	1,558	197	1,755	1,562	205	1,767	1,643	254	1,897
Other	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Infrastructure	9,334	11,832	21,166	10,168	12,964	23,132	11,624	13,124	24,748	10,907	13,414	24,321	11,320	15,044	26,364
Transportation	2,410	4,802	7,212	2,664	3,992	6,656	2,954	4,309	7,263	2,913	4,006	6,919	2,972	3,568	6,540
Land and buildings	2,435	5,153	7,588	2,578	5,683	8,261	3,266	5,583	8,849	2,774	6,052	8,826	2,919	8,559	11,478
Water supply	4,489	1,877	6,366	4,926	3,289	8,215	5,404	3,232	8,636	5,220	3,356	8,576	5,429	2,917	8,346
Civil service support services	23,050	7,177	30,227	22,334	7,362	29,696	25,573	8,259	33,832	24,394	7,291	31,685	26,951	6,880	33,831
Housing	11,357	13,294	24,651	11,891	26,959	38,850	13,564	32,843	46,407	12,884	34,144	47,028	12,847	30,551	43,398
Total public expenditure	172,419	62,361	234,780	187,857	78,591	266,448	206,586	83,544	290,130	199,672	78,744	278,416	209,097	78,039	287,136

Source: Data provided by the Government Secretariat, Finance Bureau.

1/ Public expenditure comprises expenditure by the Housing Authority, the previous provisional Urban Council, and provisional Regional Council up to 31 December 1999, expenditure financed by the government's statutory funds, and all expenditure charged to the General Revenue Account. Expenditure by institutions in the private or quasi-private sector is included to the extent of their subventions. The activities of government departments that are partly financed by charges raised on a commercial basis are also included (e.g., airport, waterworks). Excluded is expenditure by those organizations in which the government has only an equity position, including statutory organizations such as the MTR Corporation Limited, previously known as Mass Transit Railway Corporation and the Kowloon-Canton Railway Corporation. Similarly, debt repayments and equity payments are excluded, as they represent financing items.

Table 13. Hong Kong SAR—Exchange Fund Balance Sheet 1/, 1995–2000

(In millions of Hong Kong dollars; end of year)

	1995	1996	1997	1998	1999	Nov 2000 (unaudited)
Assets						
Foreign currency	428,547	493,802	588,475	701,239	755,115	831,504
Hong Kong dollar	32,187	40,715	48,198	211,036	247,641	163,412
Total	460,734	534,517	636,673	912,275	1,002,756	994,916
Liabilities						
Certificates of indebtedness 2/	77,600	82,480	87,015	86,465	118,195	93,225
Placements by other government funds 3/	125,916	145,898	237,629	424,562	392,206	421,494
Coins in circulation	3,597	4,164	5,399	5,778	5,777	5,872
Exchange Fund bills and notes	53,125	83,509	89,338	98,334	101,828	108,091
Balance of banking system	1,762	474	296	2,527	7,960	876
Other 4/	38,600	45,130	26,770	52,364	85,932	75,466
Total	300,600	361,655	446,447	670,030	411,898	705,024
Accumulated surplus	160,134	172,862	190,226	242,245	290,858	289,892

Source: Hong Kong Monetary Authority, *Monthly Statistical Bulletin*.

1/ The balance sheet comprises the accounts of the Exchange Fund only and does not include those of subsidiaries and associates.

2/ As backing for their bank note issues, the three note-issuing banks are required to hold non-interest-bearing certificates of indebtedness issued by the Exchange Fund. Since October 17, 1983 these certificates have been issued to or redeemed from the note-issuing banks against payment in U.S. dollars at a fixed rate of HK\$7.80 per US\$1.00.

3/ Placements were made by the General Revenue Account, Capital Investment Fund, Loan Fund, Capital Works Reserve Fund, Civil Service Pension Reserve Fund, Land Fund, Innovation and Technology Fund, and Disaster Relief Fund with the Exchange Fund. With effect from April 1, 1998, the majority of placements bore interest at rates determined by reference to the investment income of the Exchange Fund. The remainder continued to bear interest at pre-determined fixed rates. As from November 1998, the assets of the Land Fund were merged into the Exchange Fund.

4/ Other liabilities include placements by other institutions, interest payable on Exchange Fund Notes and placements by other government funds, other accrued expenses and the revaluation differences of placements by other government funds for which interest is payable at predetermined fixed rates.

Table 14. Hong Kong SAR—Monetary Indicators, 1995–2000 Q3 1/

	1995	1996	1997	1998	1999	2000		
						Q1	Q2	Q3
	(Percentage change)							
M1	2.8	14.2	-4.3	-5.0	13.9	21.4	8.9	10.7
M2	14.6	10.9	8.3	11.8	8.1	7.8	7.3	10.8
M3	14.2	10.5	8.2	10.5	7.7	7.5	7.0	10.4
Hong Kong dollars 2/	14.9	18.9	9.9	9.3	5.3	4.5	1.8	5.9
Foreign currency 3/	13.2	0.5	5.9	12.2	11.0	11.8	14.4	16.4
Total credit	14.3	6.3	6.4	-19.2	-11.7	-7.0	-4.6	-4.1
Hong Kong dollars	6.4	20.0	21.5	-1.6	-1.6	1.3	3.9	5.9
Foreign currency	18.2	0.0	-2.1	-31.1	-21.4	-16.4	-14.9	-16.2
Of which:								
Total loans and advances	14.5	4.7	5.3	-19.8	-14.9	-11.4	-10.4	-10.8
Hong Kong dollars	10.5	17.0	20.4	-2.7	-5.2	-2.8	0.0	2.8
Foreign currency	16.6	-1.4	-3.6	-32.4	-25.1	-21.8	-23.8	-28.2
Currency composition	(Percent of total)							
M1								
Hong Kong dollars 2/	90.1	91.2	90.4	90.2	91.2	90.9	88.9	87.7
Foreign currency 3/	9.9	8.8	9.6	9.8	8.8	9.1	11.1	12.3
M3								
Hong Kong dollars 2/	54.1	58.2	59.1	58.5	57.2	56.6	55.8	54.8
Foreign currency 3/	45.9	41.8	40.9	41.5	42.8	43.4	44.2	45.2
Velocity								
M2	0.47	0.47	0.48	0.41	0.37	0.00	0.00	0.00
M3	0.46	0.46	0.47	0.40	0.37	0.00	0.00	0.00
Memorandum items:								
Nominal GDP (HK\$ billions) 4/	1,077.1	1,191.9	1,323.4	1,261.4	1,233.1	1,250.1	1,258.7	1,268.5
Nominal growth of GDP (percent)	6.6	10.7	11.1	-4.7	-2.2	0.7	2.3	3.5

Sources: Hong Kong Monetary Authority, *Monthly Statistical Bulletin*; Census and Statistics Department, *Quarterly Report of GDP*; and staff estimates.

1/ Twelve-month change in monetary stocks at end of period; unadjusted for valuation changes in foreign currency-denominated deposits.

2/ Adjusted to include foreign currency swap deposits.

3/ Adjusted to exclude foreign currency swap deposits.

4/ Nominal GDP for four preceding quarters.

Table 15. Hong Kong SAR—Loans for Use in Hong Kong SAR, 1995–2000 Q3

(Twelve-month percentage change)

	1995	1996	1997	1998	1999	2000		
						Q1	Q2	Q3
Loans for use in Hong Kong SAR 1/	11.1	17.1	24.4	-3.8	-7.2	-4.9	-2.1	2.9
Of which:								
Manufacturing	16.6	7.4	2.9	-14.5	-15.3	-13.5	-10.3	-7.7
Transportation and equipment	-3.9	20.1	16.1	10.5	-2.8	1.7	5.2	6.8
Building, construction, and property development	5.3	27.0	32.2	-5.5	-7.7	-4.1	3.1	2.1
Wholesale and retail trade	21.0	6.1	16.5	-12.6	-19.8	-16.5	-14.2	-16.3
Miscellaneous	12.1	17.2	26.9	-2.0	-4.6	-3.1	-2.4	1.3
Of which:								
To purchase flats in the Home Ownership Scheme and private sector participation scheme	18.9	6.6	19.3	22.9	2.6	9.4	10.7	11.1
To purchase other residential property	16.7	23.1	29.4	7.3	3.3	2.6	0.5	0.3
To financial concerns	9.6	17.6	25.2	-9.8	-19.3	-15.9	-9.5	-1.7
To stockbrokers	32.5	27.3	4.3	-71.4	-36.5	27.0	-26.3	95.4

Sources: Hong Kong Monetary Authority, *Monthly Statistical Bulletin*.

1/ Based on outstanding loans at end of period.

Table 16. Hong Kong SAR—Loans and Advances by Type, November 2000

	Hong Kong dollar	Foreign currency	Total	Share of loan type in total loans
	(In billions of Hong Kong dollars)			(In percent)
Loans for use in Hong Kong SAR	1,631	347	1,979	78.75
Trade-related	45	54	99	3.94
Other	1,586	293	1,879	74.77
Loans for use outside Hong Kong SAR	24	492	516	20.53
Trade-related	2	9	11	0.44
Other	22	483	505	20.10
Loans for which the place of use is not known	4	14	18	0.72
Total loans	1,658	854	2,513	100

Source: Hong Kong Monetary Authority, *Monthly Statistical Bulletin*.

Table 17. Hong Kong SAR—Equity Price Developments, 1996-2000

	1996	1997	1998	1999	2000
	(Index of share prices)				
Hang Seng Index					
End of year	13,451.4	10,722.8	10,048.6	16,962.1	15,095.5
Average of end of month	11,646.5	13,294.7	9,484.5	12,859.9	15,838.3
Sector Indices					
(Average of end of month)					
Finance	11,411.8	16,039.2	13,383.2	18,736.0	20,229.5
Utilities	10,243.4	11,722.6	11,868.8	14,877.8	18,896.9
Property	21,926.0	22,495.3	11,713.4	15,677.0	16,558.2
Commerce and industry	8,647.5	8,857.6	5,421.5	7,589.1	10,640.9
	(Percentage change, year-on-year)				
Hang Seng Index					
End of year	33.5	-20.3	-6.3	68.8	-11.0
Average of end of month	28.0	14.2	-28.7	35.6	23.2
Hang Seng Index					
Finance	36.2	40.5	-16.6	40.0	8.0
Utilities	-0.8	14.4	1.2	25.4	27.0
Property	41.0	2.6	-47.9	33.8	5.6
Commerce and industry	28.7	2.4	-38.8	40.0	40.2

Sources: Census and Statistics Department, *Hong Kong Monthly Digest of Statistics*; and the *Asian Wall Street Journal*.

Table 18. Hong Kong SAR—Balance Sheet of All Authorized Institutions, November 2000

	Hong Kong dollar	Foreign currency	Total	Share of total assets/ liabilities	Share of Hong Kong dollar assets/ liabilities
	(In billions of Hong Kong dollars)			(In percent)	
Liabilities					
Amount due to authorized institutions in Hong Kong SAR	378	171	549	8.2	68.9
Amount due to banks abroad	223	1,565	1,788	26.7	12.5
Deposits from customers 1/ Negotiable certificates of deposit (NCDs) outstanding	1,803	1,628	3,458	51.6	52.1
Other debt instruments outstanding	123	27	180	2.7	68.3
Capital, reserves and other liabilities	3	54	56	0.8	4.7
	473	193	667	10.0	70.9
Total liabilities	3,060	3,638	6,698	100	45.7
Assets					
Notes and coins	10	2	12	0.2	83.3
Amount due from authorized institutions in Hong Kong SAR	380	178	558	8.3	68.1
Amount due from banks abroad	166	2,240	2,406	35.9	6.9
Loans and advances to customers	1,658	854	2,513	37.5	66.0
NCDs held	98	36	133	2.0	73.7
Negotiable debt instruments held, other than NCDs	327	428	755	11.3	43.3
Investments in shareholdings	18	2	20	0.3	89.5
Interest in land and buildings	53	1	54	0.8	98.6
Other	129	119	248	3.7	52.0
Total assets	2,840	3,859	6,698	100	42.4
Memorandum items:					
Number of reporting institutions	263				
Number of branches	1,546				

Source: Hong Kong Monetary Authority, *Monthly Statistical Bulletin*.

1/ Unadjusted for foreign currency swap deposits.