

MASTER FILES
ROOM HQ C-525 0450

SM/99/53

CONTAINS CONFIDENTIAL
INFORMATION

February 25, 1999

To: Members of the Executive Board

From: The Secretary

Subject: **Singapore—Selected Issues**

This paper provides background information to the staff report on the 1998 Article IV consultation discussions with Singapore, which was circulated as SM/99/49 on February 24, 1999.

Mr. Ostry (ext. 37405) is available to answer technical or factual questions relating to this paper prior to the Board discussion.

Unless the Documents Section (ext. 36760) is otherwise notified, the document will be transmitted, in accordance with the procedures approved by the Executive Board and with the appropriate deletions, to the WTO Secretariat on Friday, March 5, 1999; and to the Asian Development Bank and the United Nations Development Programme, following its consideration by the Executive Board.

Att: (1)

Other Distribution:
Department Heads



INTERNATIONAL MONETARY FUND

SINGAPORE

Selected Issues

Prepared by J. Ostry, M. Stone, M. Sarel and J. Lee (all APD)

Approved by the Asia and Pacific Department

February 24, 1999

	Contents	Page
I.	Singapore's Financial Sector: Background and Recent Policy Developments	3
	A. Introduction	3
	B. Structure of the Financial System	4
	C. Impact of the Asian Crisis	6
	D. The New Policy Approach	7
	1. Banking Sector	7
	2. Fund Management	9
	3. Bond Market	9
	4. Internationalization of Singapore dollar	10
	E. Conclusion	11
II.	The Impact of the External Environment on Economic Activity in Singapore	12
	A. Introduction	12
	B. The Empirical Estimation	12
	C. Implications	13
III.	Singapore: Competitiveness Issues	15
	A. Introduction	15
	B. Indicators of Export Performance and Competitiveness	17
	1. Exports	17
	2. Foreign Direct Investment	17
	3. Indicators of Competitiveness	18
	C. Equilibrium Real Exchange Rate	20
	D. Have Exports Underperformed?	23
	E. Conclusion	23
	References	24

Contents		Page
Text Tables		
II.1.	Effects of Foreign Demand on Singaporean Output	13
II.2.	Staff and Model Projections of GDP in Singapore	13
II.3.	Estimated Impact of the Deterioration in the External Environment	14
III.4.	Share of Global FDI Inflows to Various Regions	17
III.5.	Equilibrium Relationship for the Real Exchange Rate	21
III.6.	Equilibrium Relationship for Export Volumes	23
Charts		
III.1.	Export Performance and Foreign Direct Investment 1980-98	16
III.2.	Indicators of Competitiveness, 1980-98	19
III.3.	Exchange Rates and Export Volumes: Actual and Equilibrium Values, 1980-98	22

I. SINGAPORE'S FINANCIAL SECTOR: BACKGROUND AND RECENT POLICY DEVELOPMENTS¹

A. INTRODUCTION

1. Singapore has had a longstanding policy of encouraging the development of its financial sector. In 1968, important tax and regulatory incentives were introduced to attract foreign investment in the financial sector and boost financial sector activity. In particular, the government catalyzed the development of Asian Currency Units (ACUs) by exempting nonresident depositors from withholding tax on ACU deposits. Stock market activity was boosted by the launching of the Central Limit Order Book (CLOB) (an over-the-counter market) in 1990, and the continual relaxation of regulations governing Central Provident Fund (CPF) investments. Derivatives trading was boosted by the opening in 1984 of the Singapore International Monetary Exchange (SIMEX) which offered Asia's first eurodollar futures contracts.

2. As a result of such measures, the financial and business service sector grew rapidly, increasing its share in GDP by over 15 percentage points over the past three decades, to 31 percent at present. This pace of expansion was facilitated by rapid regional growth, and the need to intermediate the substantial capital inflows that made possible such growth. In addition, Singapore benefited from the overlap between its trading hours, and those of New York, London, and Tokyo; as well as by its modern infrastructure and skilled labor force, its stable political system, and its reliable legal and regulatory framework. Favorable tax and regulatory treatment also encouraged financial sector development. In 1992, Singapore overtook Switzerland as the fourth largest foreign exchange market in the world.

3. Past success, however, created a new set of challenges. The domestic banking sector is widely held to be overbanked, leading to poor productivity performance over the past decade, and creating incentives for mergers among the local banks. Convergence of regulatory and fiscal incentives across countries also put pressure on Singapore's offshore financial center, and the steady increase in Singapore's share of world offshore banking assets has tapered off since the mid-1990s. The regional crisis has also highlighted Singapore's inherent vulnerability to external shocks, as well as bringing to the fore transparency issues, where Singapore has traditionally lagged behind international best practice and made itself more vulnerable to unwarranted contagion.

4. In response, a new approach to the financial sector has been launched to deal with these longer-term trends, as well as issues—such as transparency—that have been highlighted by the regional crisis. The intent is to seize the opportunity of the present lull in

¹Prepared by Mark R. Stone.

activity to position Singapore's financial sector for the next wave of regional growth and to secure its role as a key international financial center. Important areas receiving attention include improved disclosure standards, boosting the fund management industry, deepening the local bond market, and relaxing restrictions on the use of the Singapore dollar by nonresidents.

5. This paper begins with a brief overview of the institutional structure of Singapore's financial system (Section B). It then describes how the Asian crisis has impacted upon the financial sector (Section C) before turning to the recent policy initiatives (Section D). The main conclusions are summarized in Section E.

B. STRUCTURE OF THE FINANCIAL SYSTEM

6. The Monetary Authority of Singapore (MAS) regulates the financial sector and is responsible for all the normal central bank functions except the issuance of legal tender currency, which is the responsibility of the Board of Commissioner of Currency of Singapore. The MAS was established in 1971 as a statutory board.

7. Domestic banking units (DBUs) are segmented from ACUs. DBUs can engage in local and foreign currency transactions but they face more stringent regulation than ACUs. DBUs must hold a minimum cash balance of 3 percent of their liabilities with the MAS, and hold 18 percent of their liabilities in liquid assets (at least 10 percent in Singaporean government securities). DBUs are subject to the standard corporate tax rate of 26 percent. More than 80 percent of local bank assets are accounted for by the four major banking groups: the government-controlled Development Bank of Singapore (DBS); the family-owned Overseas Chinese Banking Corporation (OCBC); the Overseas Union Bank (OUB); and United Overseas Bank (UOB). Two medium-sized banks, Keppel Bank and Tat Lee Bank, merged in December 1998, and DBS and the Post Office Savings Bank (POSB) merged in November 1998. These mergers are consistent with government policy, given the authorities' view that the domestic banking sector is overbanked. By law, banks are required to maintain a 12 percent risk-weighted capital adequacy ratio (CAR). Foreign ownership of local banks is limited to 40 percent.

8. Banks may also operate Asian Currency Units with MAS approval.² ACUs may not incur assets or liabilities in Singapore dollars, but have no reserve requirements, minimum liquidity ratios, and they enjoy a concessionary tax rate of 10 percent for transactions with non-residents and approved foreign institutions. The maturity structure of ACU assets and liabilities are similar: at September 1998, 17 percent of assets and 4 percent of liabilities had maturities exceeding one year, while net external liabilities of ACUs are relatively small, amounting to about 6 percent of GDP.

9. The Stock Exchange of Singapore (SES) oversees equity markets. The SES oversees five equity markets: the Main Board, the largest and primary market; CLOB, an over-the-counter market for international stocks; the SESDAQ, a secondary market trading in shares of small and medium sized companies; the Debentures, Bonds, Loans and Transferable Subscription Rights Market, and the Stock Options Market. Stock market capitalization, equivalent to 237 percent of GDP in 1997, is relatively high by regional standards.

10. The Singapore International Monetary Exchange (SIMEX) was established in 1984 as Asia's first financial futures market. SIMEX offers the broadest range of futures and options contracts in the region, mainly in eurodollars, euroyen, crude oil, Japanese government bonds, and the main stock market indices of Singapore, Japan, Thailand, Hong Kong, and Taiwan POC. Almost 80 percent of its customer trades come from outside Singapore. SIMEX comes under MAS jurisdiction through the Futures Trading Act.

11. Unit trusts have been regulated under the Singapore Companies Act by the MOF's Registry of Companies and Businesses (RCB). Regulation of unit trusts, however, was transferred from the RCB to the MAS at end-1998.

12. Other nonbank financial institutions include merchant banks, whose principal activities are underwriting, securities management, and interbank lending; insurance companies; finance companies, which primarily accept time and saving deposits, and provide mortgage loans to nonbanks; and representative offices of foreign commercial and merchant banks.

²Three types of licenses are available to commercial banks in Singapore. Banks with "full licenses" (32 in total including the 10 domestic banks) can offer a full range of local and foreign currency services. Banks with "restricted licenses" (13) can operate the whole range of activities in the Asian Dollar market as the full licensed banks but the activities of their DBUs are limited; they can maintain only a single branch, cannot accept fixed interest-bearing deposits less than S\$250,000 from nonbanks, and cannot offer general savings accounts. Banks with "offshore licenses" (104), which is the only license granted by the MAS in recent years, operate primarily in the Asian Dollar Market; they cannot accept any interest-bearing Singapore dollar deposits from resident nonbanks (except approved financial institutions) and can maintain only one branch.

13. The CPF is a compulsory fully-funded superannuation scheme, which aims to provide members with a monthly income for a modest standard of living starting from age 60. The 40 percent CPF contribution rate for workers 55 years old and below is shared equally between employees and their employers.³ A member may use 80 percent of his CPF savings in excess of the minimum sum—the sum needed to meet the retirement income standard—for approved investments. Under the CPF Investment Scheme, individuals may use CPF savings to buy stocks and shares of listed Singapore companies, unit trusts approved by the CPF board, gold (up to a limit), government bonds, bank deposits, and endowment insurance policies. For members who invest in shares directly, current CPF rules allow them to invest freely in “trustee stocks” approved by the CPF board.

C. IMPACT OF THE ASIAN CRISIS

14. The crisis has impacted the financial sector through three main channels. First, regional economies are in severe recession, reducing capital inflows and intermediation by financial institutions in Singapore, as well as bank profitability and the quality of bank portfolios. Second, the slowing of the domestic corporate sector, together with sizable asset price declines, have also impacted adversely on bank portfolios. Third, the imposition of exchange controls by Malaysia in September contributed to a sharp decline in activity in the over-the-counter market, where Malaysian shares dominate.⁴

15. Reflecting these channels, the profitability of domestic banks fell by 28-50 percent during the first half of 1998 relative to 1997. In addition, total nonperforming loans (NPLs) of

³Employer contributions have been reduced to 10 percent in 1999-2000.

⁴The Kuala Lumpur Stock Exchange (KLSE) imposed a new rule on August 31, 1998, requiring all trades in Malaysian shares to be done on the KLSE. In addition, the Malaysian authorities implemented capital controls that required: the repatriation by October 1 of all ringgit held abroad and an end to offshore trading in ringgit instruments; the retention of the proceeds of the sale of Malaysian securities in the country for a year; payment in foreign currency for imports and exports; and central bank approval for the conversion of ringgit into foreign currency. The new KLSE rule together with the capital controls effectively shut down the over-the-counter securities market.

5 percent as of June 30, 1998, while total provisions by the top four banks rose by S\$1.2 billion in the first half of 1998.⁵ Banks maintained healthy capital adequacy ratios, however, with risk-weighted capital ratios above the required 12 percent mandatory level at end-1997.

D. THE NEW POLICY APPROACH

16. The new policy approach is based on a comprehensive review of the financial sector that began before the crisis. The new approach involves a shift in emphasis from regulation to risk-focused supervision, with greater emphasis on upgrading disclosure standards to inform and protect investors, rather than extensive regulation. These policy principles are being implemented with substantial input from the private sector through the Financial Sector Review Group (FSRG) which was formed in 1997. Extensive recommendations have been made by the FSRG subcommittees: the Banking Disclosure Committee; the SES Review Committee; the Corporate Finance Committee, and the Committee on Governance of Exchanges.

1. Banking Sector

Improved Disclosure

17. Bank disclosure is to be enhanced along the lines recommended in the May 1998 report by the Committee on Banking Disclosure (CBD), a subcommittee of the FSRG. Specifically, the CBD recommended that banks discontinue the practice of maintaining hidden reserves and disclose the market value of their investments. Hidden reserves have arisen from the past practice of recording long-term equity and property investments at cost without disclosing their market value, and taking realized profit from sale of these investments to "other liabilities" instead of to the profit and loss account.

18. Second, the CBD recommended that banks report fully their loan-loss provisions. Banks would provide a "movement schedule" showing the balance of provisions at the

⁵Definitions of non-performing loans are as follows:

- Substandard: normal repayments are overdue or may be in jeopardy (10 percent provision is required for the unsecured portion).
- Doubtful: full liquidation of outstanding debts appear questionable and the accounts suggest that there will be a loss (50 percent provision is required for the unsecured portion).
- Loss: outstanding loans are regarded as uncollectible (100 percent provision is required for the unsecured portion).

beginning of the year, the amount charged/released to the profit and loss account during the year, bad debts written off during the year, and the balance of specific provisions for loans and diminutions in the value of investments and general provisions at the end of the year. Banks would also report the level of nonperforming loans.

19. Third, the CBD recommended that banks disclose, by way of a note to the financial statements, contingent liabilities, commitments and financial derivatives.

20. Fourth, the CBD recommended that banks henceforth disclose any significant concentrations of exposure, for example by customer or industry groups, geographical areas, and maturities.

21. In June 1998, the MAS and the six locally incorporated banks accepted the recommendations of the CBD. These banks reported NPL levels and exposure to the regional economies in their 1997 annual reports and on a quarterly basis for 1998. The MAS is in the process of preparing a new directive on disclosure which is intended to take effect prior to the publication of 1998 bank annual reports.

Establishment of a Real-Time Gross Settlement System (RTGS)

22. The Banking Act was amended in July 1998 to allow the MAS to establish and operate an RTGS system to reduce payment system risk. Under the old end-of-day settlement system, if one bank did not have sufficient funds to meet its obligations at the end of the day, all the payments that had been accumulated during the day could have been unwound, affecting other banks. Under the RTGS system, which was implemented on July 13, payment instructions between banks are processed and settled individually and continually during the day, subject to the paying bank having sufficient funds in its current account maintained with the MAS.

Increased Tax Deduction for General Provisions

23. The 1998/99 budget included a new tax deduction to encourage the buildup of general provisions. The annual limits for claiming tax deduction on general provisions—25 percent of qualifying profits and 0.5 percent of qualifying loans and investments—were suspended for two years with effect from year of assessment 1998.

Risk-focused Approach to Bank Examinations

24. The MAS will shift from a “one-size-fits-all” regulation to a regulatory approach tailored to specific banks’ track record and risk profile. Examinations will focus in particular on bank’s risk management system, based on pre-examination meetings with both management and external auditors. Risk-based and pre-planned inspections will be shorter

and more frequent. Stronger banks will be given flexibility to develop and innovate, while weaker banks will be subject to stricter controls.

2. Fund Management

25. In addition to banking sector reforms, the authorities are implementing policies to develop Singapore's fund management industry. The principal changes are:

- In 1997, five-year tax holidays were provided for investment houses with more than S\$10 billion under management in Singapore.
- The authorities are committed to increasing the amount of GIC funds under private sector fund management in Singapore from S\$10 billion to S\$35 billion and the amount of MAS Funds from 0 to S\$10 billion over the next 3 years.
- The 10 percent tax imposed on distributions from unit trust for residents was removed in February 1998 to make such investments more attractive. Further, the withholding tax requirement on taxable distributions made to unit holders who are tax residents of Singapore was also removed.
- In May 1998, the CPF Investment Scheme was further revised to improve the range and quality of unit trusts offered under the Scheme. Under the new Scheme, approved unit trusts will be classified into different categories according to their risk/return profiles. Disclosure standards will be improved to ensure that members are adequately informed of the returns and risks associated with their investments. Performance of CPF-approved unit trusts will be tracked and published regularly to assist CPF members in making informed investment decisions.

3. Bond Market

26. The authorities have implemented a set of measures to promote the development of an active bond market:

- To establish a yield curve benchmark and create depth in the long-term bond market, the government issued in July 1998 S\$1.5 billion worth of 10-year Singapore Government Securities. There are plans to issue more such bonds in the future.
- Beginning in mid-1998, financial institutions in Singapore were allowed to invest in Singapore-dollar bonds issued by foreign-owned companies which have good standing, subject to consultation with the MAS.

- From August 1998, CPF savings may be used for investment in approved debt instruments, including corporate bonds issued by Singapore companies.
- A range of new tax incentives for development of the bond market, which will be in place for 5 years, were enacted in February 1998.
- Statutory boards and GLCs will increase bond issuance to develop the bond market. The Housing Development Board announced in October that it will issue S\$2 billion worth of bonds over the next 18 months to fund part of its housing program.

4. Internationalization of Singapore dollar

27. The authorities have had a longstanding policy of discouraging the internationalization of the Singapore dollar, out of concern that a large offshore market in Singapore dollars could destabilize capital flows and induce greater exchange rate and interest rate volatility. Nevertheless, they have acknowledged that internationalization is to some extent inevitable in the medium-term given the regionalization of the economy and the presumption that restrictions on the use of the Singapore dollar by nonresidents are unlikely to be fully effective in the long run.

28. The authorities have undertaken to update regulations governing the use of the Singapore dollar by nonresidents. In this context, the MAS canceled regulation "MAS 621," originally issued in 1983 and amended in 1992, which required that financial institutions in Singapore consult the MAS before providing Singapore-dollar credit facilities to nonresidents above certain limits for financial investments, third party trade or for use outside Singapore. Financial institutions had also been required to consult the MAS on Singapore-dollar credit facilities to residents above limits if the proceeds were to be used outside Singapore.

29. MAS 621 was replaced by MAS 757 in August 1998.⁶ The main effects are:

- MAS 757 stipulates that banks are not required to consult the MAS when extending Singapore-dollar credit facilities to Singapore residents for any purpose, whether in Singapore or overseas.
- Non-residents may borrow Singapore dollars to finance overseas projects as long as these proceeds are converted or swapped into foreign currency for use outside Singapore, and subject to MAS approval.

⁶MAS 757 will be reviewed in August 1999.

- Banks are no longer required to consult MAS when extending Singapore-dollar credit facilities to or arranging Singapore-dollar equity listings and bond issues for nonbank nonresidents if the Singapore-dollar proceeds from these are to be used for economic activities in Singapore.
- Hedging of the Singapore-dollar exchange rate and interest rate risks arising from economic activities in Singapore is also allowed without consultation with MAS.
- Banks may also extend freely Singapore-dollar credit facilities to nonbank nonresidents for financial investments such as shares, bonds, deposits, and commercial properties in Singapore if these credit facilities do not exceed S\$5 million; for amounts exceeding S\$5 million, banks must consult MAS.
- Foreign-owned companies incorporated in Singapore with at least 20 percent of revenues attributable to operations in Singapore can list shares in Singapore dollars on the SES.

E. CONCLUSION

30. Singapore is in the process of implementing policies that should position its financial sector favorably for the next wave of regional growth. What is being proposed is an important change in emphasis from regulation to risk-focused supervision, as well as a shift toward a disclosure-based regime. In this regard, the recent agreement between the MAS and the locally incorporated banks to enhance disclosure, which is expected to become legally binding during 1999, should increase transparency about financial institutions, thereby reducing risks of unwarranted contagion and bringing Singapore more in line with international best practice.

31. In addition, the authorities are putting in place policies to foster the medium-term expansion of certain segments of the financial sector, including fund management and the debt securities market. These efforts—including placing more public sector assets with local fund managers and expanding issuance of bonds by public sector entities—have the potential to contribute to sizable further expansion of these financial subsectors. As a whole, the package of reforms appears set not only to boost Singapore's prospects as a regional financial center, but may also contribute to diversifying the economy away from its traditional mainstays of electronics and entrepôt trade, and hence improving its resiliency to future shocks.

II. THE IMPACT OF THE EXTERNAL ENVIRONMENT ON ECONOMIC ACTIVITY IN SINGAPORE⁷

A. INTRODUCTION

32. The openness of Singapore's economy to foreign trade—the trade to output ratio is about 300 percent—is a key factor influencing the propagation of foreign disturbances to the domestic economy. In the current regional crisis, domestic demand in Singapore's main export markets declined significantly. This note attempts to provide a quantitative estimate of the impact of the change in the external environment on economic activity in Singapore. Such an estimate would not only contribute to a better understanding of the reasons behind the sharp deterioration in growth during 1998, but would also help to inform growth projections for 1999 and over the medium term, and provide a sensitivity analysis as to the impact of possible future changes in the external environment.

B. THE EMPIRICAL ESTIMATION

33. To assess the importance of the external environment for economic activity in Singapore, an econometric analysis was undertaken in which Singapore's output depended on domestic demand in its five main trading partners: the United States, Malaysia, Hong Kong SAR, Japan, and Thailand. Together, these economies account for almost two-thirds of Singapore's merchandise exports in 1997.

34. The estimation was based on a cointegration approach, where the variables consisted of growth in Singapore and domestic demand in each of the five main trading partners. The sample period was 1980-97.

35. Table 1 describes the estimated cointegrating vector.⁸ The results indicate that growth in Singapore is closely related to demand in the United States and Malaysia, and to a lesser extent to demand in Hong Kong SAR, Japan, and Thailand. The elasticity of Singaporean GDP with respect to domestic demand in the United States and Malaysia is estimated to be about one-third.

⁷Prepared by Michael Sarel.

⁸Each of the variables in Table 1 was found to have a single unit root. The residual from the cointegration equation was found to be stationary at the 95 percent confidence level. All variables were in logarithmic form. The cointegration equation also included a constant term and a time trend.

Table 1. Effects of Foreign Demand on Singaporean Output

Variable	Coefficient
Domestic demand in the United States	0.357
Domestic demand in Malaysia	0.336
Domestic demand in Hong Kong SAR	0.173
Domestic demand in Japan	0.119
Domestic demand in Thailand	0.031

C. IMPLICATIONS

36. Using recent (mid-November 1998) staff estimates for domestic demand in the five partner countries for the period 1999–2003 and the above elasticities, it is possible to calculate fitted values for Singaporean GDP for 1999–2003, and to construct 95-percent confidence intervals around them. These results, together with the staff's latest forecasts, are reported in Table 2.

Table 2. Staff and Model Projections of GDP in Singapore
(Index 1997 = 100)

Year	Staff's projection	Model central estimate	Model lower bound	Model upper bound
1999	101.5	97.8	90.0	106.4
2000	105.9	102.6	93.4	112.7
2001	111.6	108.2	97.8	119.7
2002	117.4	114.8	103.1	127.8
2003	123.6	122.0	108.7	136.8

37. The model predicts that growth in Singapore will be slightly negative during 1998–99—about minus 1 percent on average over the two years. The confidence interval around these projections is quite large, however, ranging from minus 5 percent to plus 3 percent. The staff's latest projections of about ¾ percent growth on average in 1998–99 are therefore fully consistent with the estimates generated by the model.

38. For the medium term, the model predicts an average growth rate of about 6 percent during 2000–03, reflecting the turnaround in the external environment. For example, domestic demand growth is projected to increase from -10 percent on average in 1998-99 to 4 percent on average in 2000-2003 in Malaysia and from -5 percent to 4 percent in Hong Kong SAR. The staff's latest projections for the medium term are also close to the central estimates generated by the model.

39. Another possible use of the empirical results is to estimate the impact on Singapore of the deterioration in the external environment that has occurred since the onset of the Asian crisis in mid-1997. Using the staff's recent projections of domestic demand in the five trading partners for the period 1998–2002 and comparing them to the pre-crisis (May 1997) WEO projections, it is possible to calculate the change in the external environment facing Singapore and to estimate its impact on growth in Singapore. The results are presented in Table 3.

Table 3. Estimated Impact of the Deterioration in the External Environment

Year	Simulated GDP level based on May 1997 WEO (index 1997=100)	Simulated GDP level based on Nov. 1998 WEO (index 1997=100)	Difference in simulated GDP level in Singapore (in percent)
1999	114.1	97.8	-14.2
2000	122.0	102.6	-15.9
2001	130.5	108.2	-17.1
2002	139.6	114.8	-17.8

40. These simulation results suggest that the deterioration in the external environment—which can be attributed mainly to the Asian crisis and the Japanese recession—could be expected to reduce growth in Singapore by about 7 percentage points on average during 1998-99 and by about 1 percentage point on average during 2000–02. By the year 2002, the level of GDP could be 18 percent lower than it would have been if the external environment had remained as anticipated in May 1997. The simulated results also imply that the average growth rate for the 5-year period 1998–2002 could decline from about 7 percent to less than 3 percent as a result of the regional crisis.

41. The staff's latest projections of growth in Singapore are broadly consistent with these simulation results. Growth projections have been reduced since May 1997 by about 5¼ percentage points for 1998–99 and by about ½ percentage point for 2000–02.

III. SINGAPORE: COMPETITIVENESS ISSUES⁹

A. INTRODUCTION

42. Following rapid growth averaging 15 percent in the decade to 1996, Singapore's exports (in volume terms) slowed to about 7 percent in 1997 and declined by about 1 percent in 1998. In U.S. dollar terms, the slowdown was more pronounced, given the sharp fall in world prices for electronic products. Singapore's share of world exports has also declined slightly since 1996, following a trend increase over the past two decades, reflecting lower penetration of the U.S. and Japanese markets (see Chart 1).

43. Do these developments reflect inadequate competitiveness, or instead the cyclical effects of the Asian crisis and a softening in the global electronics market? This is an appropriate juncture at which to ask this question, not only because of recent export developments, but because the issue of Singapore's competitiveness—defined broadly to include those factors that will sustain Singapore's growth potential over the medium-term—is a key issue examined by the Committee on Singapore's Competitiveness (CSC) that was established in May 1997.

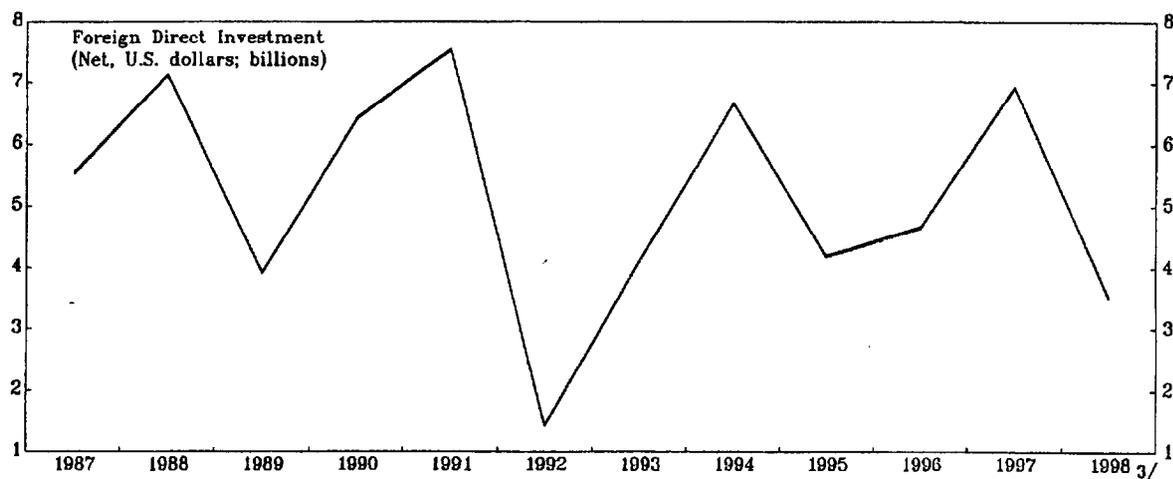
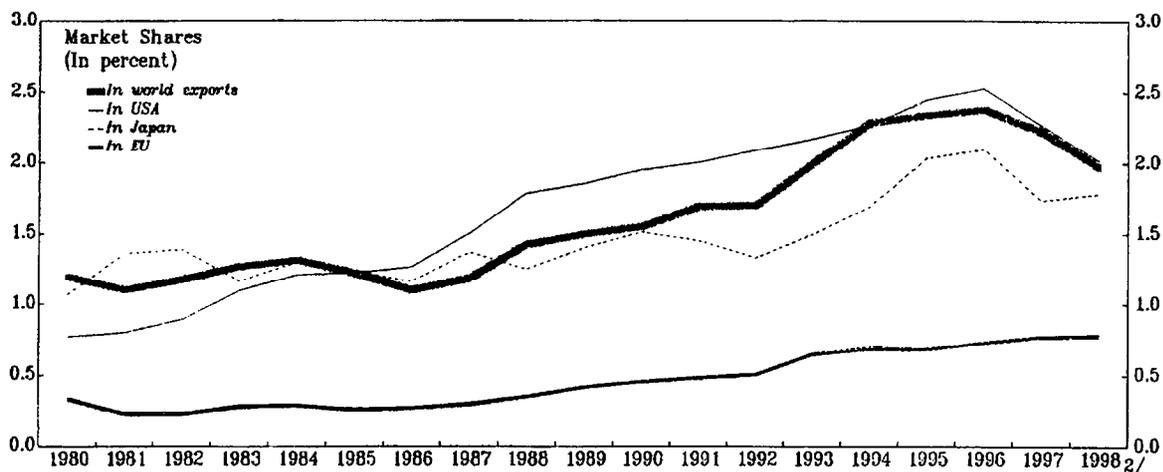
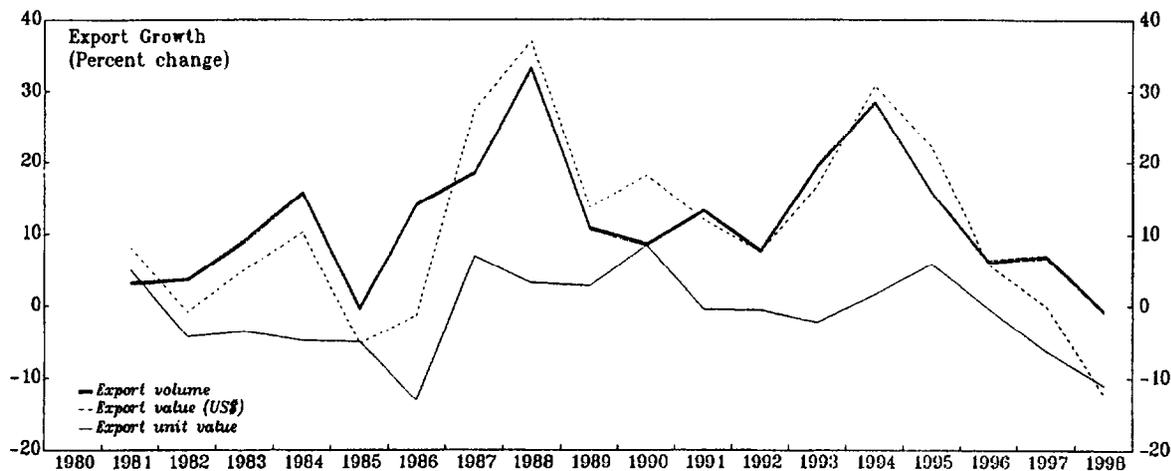
44. The remainder of this note is organized as follows. In section B, some stylized facts about Singapore's export performance and summary indicators of competitiveness are discussed. In Section C, an empirical estimation of the determinants of Singapore's long-run equilibrium real exchange rate is undertaken in order to gauge the degree of possible exchange rate misalignment. Section D poses the question of misalignment in another way, namely by asking whether recent export performance is worse than would have been predicted using a standard export equation under which exports depend on relative prices and foreign demand. There is no evidence, based on either approach, of structural competitiveness problem or significant exchange rate misalignment at present, suggesting that cyclical factors are likely to be mainly responsible for the recent deterioration in export performance. Section E summarizes the main conclusions.

⁹Prepared by Jaewoo Lee.

CHART 1

SINGAPORE

EXPORT PERFORMANCE AND FOREIGN DIRECT INVESTMENT,
1980-98 1/



Sources: Singapore Department of Statistics. IMF: IFS, DOTS; and staff estimates.

1/ Consistent data on Foreign Direct Investment are available from 1986 onwards.

2/ First three quarters.

3/ First three quarters at an annual rate.

B. INDICATORS OF EXPORT PERFORMANCE AND COMPETITIVENESS

1. Exports

45. In U.S. dollar terms, exports fell by about 12 percent (year-on-year) in 1998 (Chart 1), reflecting an 11 percent decline in export unit values (including for electronic products and other office machinery), and a 1 percent decline in volumes (the first decline since the mid-1980s). Nevertheless, taking a longer horizon, export volume growth has averaged very high rates in the years leading up to the crisis—10 percent during the 1980s and 14 percent during the 1991-1996 period.

46. Singapore's share of key export markets also fell slightly from 1996 to 1998. In terms of world exports, Singapore's share declined from 2.4 percent in 1996 to 2 percent in 1998. The market share in the U.S. fell from a peak of 2.5 percent in 1996 to about 2 percent in 1998, while the market share in Japan fell marginally over this period. Taking a longer horizon, however, market shares in 1998 are still higher than the shares in 1991, and are about twice as large as the market shares in the early 1980s.

2. Foreign Direct Investment

47. Net inflows of foreign direct investment also fell sharply in 1998. This series, however, has been highly volatile historically, with substantial slowdowns having been experienced in 1989, 1992, and 1995. The current slowdown is not unusual given the past cyclical pattern. Moreover, there is some evidence that the decline in net FDI inflows has partly reflected lower inflows to the region as a whole, as the share of global foreign direct investment inflows into the region also fell slightly in 1997 (Table 4).

Table 4. Share of Global FDI Inflows to Various Regions

	Singapore	Selected ASEAN	China	Latin America
1994	2.3	6.2	14.2	11.3
1995	2.2	6.0	11.3	8.0
1996	2.8	7.2	12.1	13.0
1997	2.5	6.0	11.3	14.0

Note: Selected ASEAN includes Singapore, Malaysia, Thailand, the Philippines, and Indonesia.

Source: UNCTAD, *World Investment Report*, as provided by the Singapore authorities.

3. Indicators of Competitiveness

48. Following a sizable depreciation in the mid-1980s, Singapore's consumer-price-based real effective exchange rate index (INS measure) experienced a trend appreciation of about 2 percent annually through 1997 (Chart 2). This appreciation has generally been interpreted as reflecting an appreciation of the equilibrium real exchange rate either because rising incomes create an excess demand for nontradable products which is cleared by a rise in the price of nontradables relative to tradables, or because faster productivity growth in the tradables sector results in a drop in the relative price of tradable products. In either case, the equilibrium real exchange rate appreciates, and the actual trend appreciation—often referred to as a Balassa-Samuelson effect—does not reflect overvaluation or misalignment. Following this trend appreciation, the nominal effective exchange rate has depreciated slightly since mid-1997 and, in addition, inflation in Singapore has averaged less than in trading partners. As a result, the real effective exchange rate has depreciated by about 8 percent between mid-1997 and November 1998.¹⁰

49. Economy-wide unit labor cost increases have moderated over the past year, slowing to about 1 percent compared to more than 3 percent annually over the previous decade. Unit labor costs in manufacturing have been on a downward trend since 1992. In U.S. dollar terms, unit labor costs in manufacturing fell by about 5 percent in 1997 and by an estimated 15 percent in 1998, following an extended period of moderate annual increases. Unit labor costs in manufacturing, relative to Asian NIEs, China, and Japan, have nevertheless increased in recent years. The same is true in relation to the U.S. and major European countries (France, Germany, and U.K.), except in 1997 when Singapore's relative unit labor costs declined slightly with respect to these countries.

50. Total factor productivity growth, which has averaged about 3 percent over the 1990s, compares favorably with that of regional competitors (Sarel, 1997). The marginal product of capital has also been steady through the decade to 1997. According to the World Competitiveness Yearbook, Singapore's labor productivity was higher than that in Hong Kong SAR, Taiwan, and Korea in 1997.

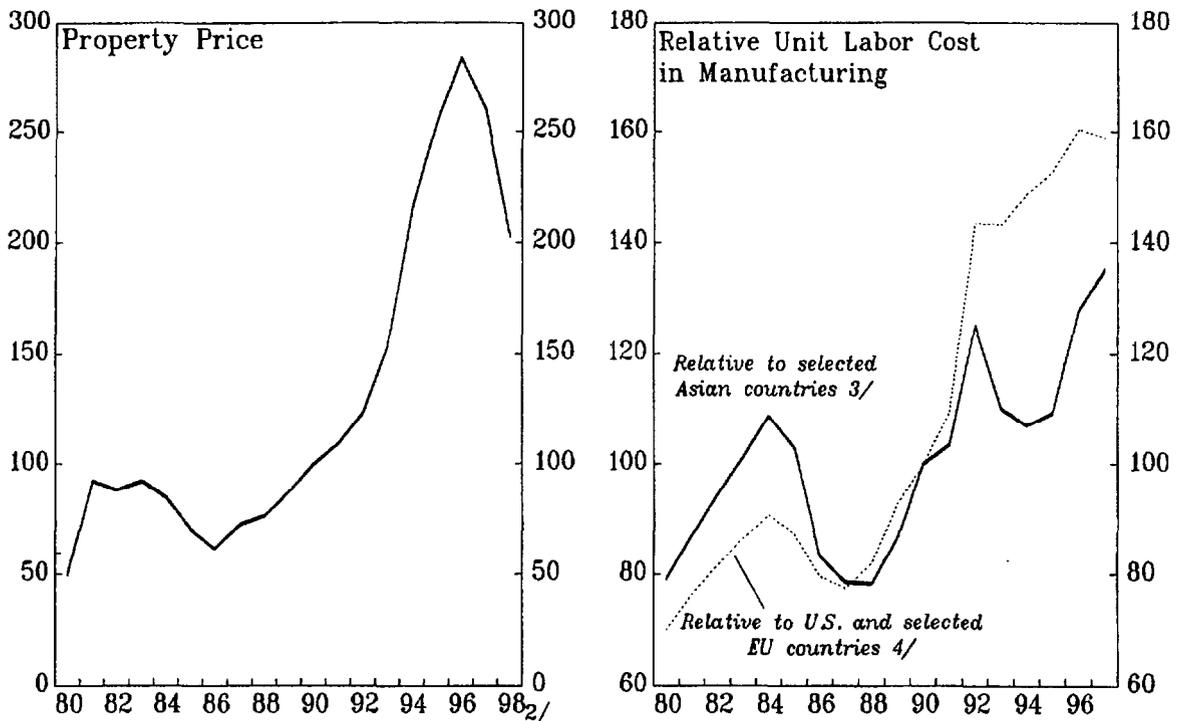
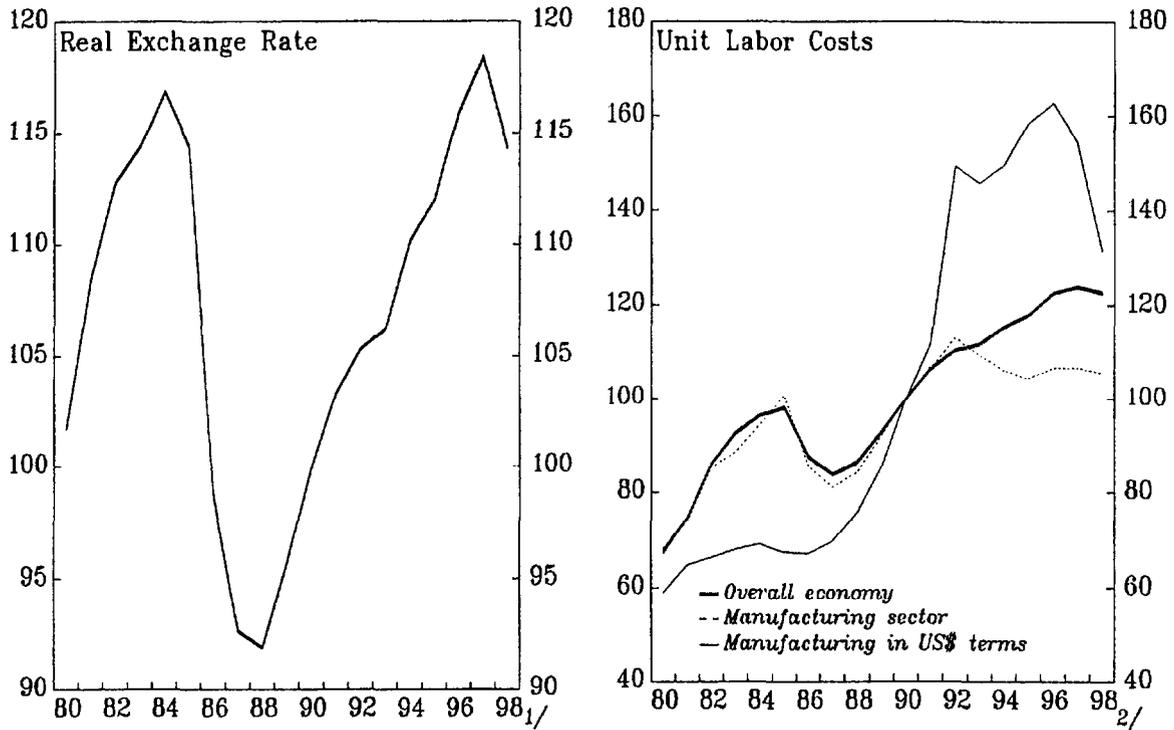
51. Property prices, which rose rapidly in the early 1990s, have been falling since mid-1996, when the authorities introduced anti-speculative measures relating to the private residential property market. Property prices have declined by about 40 percent through the third quarter of 1998.

¹⁰The currency depreciated significantly less (by about 4 percent) if a DOTS trade-weighted index is used rather than the INS-based measure. The former has larger weights on Singapore's ASEAN trade partners, against which the Singapore dollar has appreciated, but does not take into account third-country competition (which is included in the INS measure).

SINGAPORE

INDICATORS OF COMPETITIVENESS, 1980-98

(Index: 1990=100)



Sources: Singapore Department of Statistics, IMF: INS, WEO; and staff estimates.

1/ Through November 1998.

2/ First three quarters.

3/ Selected Asian countries include China, Hong Kong SAR, Japan, Korea, and Taiwan Province of China; trade-weighted.

4/ Selected EU countries include France, Germany, and United Kingdom; trade-weighted.

52. The World Competitiveness Report, using an index which covers eight indicators of medium-term competitiveness—including fiscal policies, openness, and labor markets—ranked Singapore as the most competitive economy in the world in 1998, same as in 1996 and 1997. Singapore topped the list by scoring high on all of the main indicators.

53. The Committee on Singapore's Competitiveness released in November 1998 its proposal on short-term responses to the regional crisis and long-term strategies to improve the economy's competitiveness. The short-term responses focused on reducing business costs by some 15 percent through a 10 percent reduction in the employer contribution rate to the Central Provident Fund (CPF), and a 5-8 percent reduction in wages. Rentals will be reduced for Jurong Town Corporation (JTC) and Housing Development Board (HDB) properties, together with reductions in other government-imposed or regulated taxes and fees (including charges for electricity and telecommunications). These measures, which recently received Government approval, should serve to enhance Singapore's cost competitiveness further in the near term, and help to offset the impact on firms of the adverse external demand shock.

C. EQUILIBRIUM REAL EXCHANGE RATE

54. In this section, an econometric model is estimated with the purpose of gauging the current level of the equilibrium real exchange rate (ERER) based on a set of fundamentals. The ERER is defined to be the level of the real exchange rate that is consistent with both internal balance (full employment) and external balance (a sustainable current account position). As discussed in Clark et. al (1994) and Montiel (1997), fundamental determinants of the equilibrium real exchange rate include: differential productivity growth between tradables and nontradables (Balassa-Samuelson effect); the composition of government expenditure between tradables and nontradables; the external environment (including terms of trade, external transfers, and global real interest rates); and trade liberalization.

55. Faster productivity growth in tradables than in nontradables, increases in government expenditures on nontradables, and terms of trade improvements, typically appreciate the ERER, since they lead to an incipient excess demand for nontradables. For a creditor nation such as Singapore, increases in world real interest rates appreciate the long-run ERER, by increasing the net income on external assets. Domestic trade liberalization depreciates the ERER since a lower exchange rate is required to restore external balance. Wealth effects associated with property price increases may also be a significant determinant of the relative price between tradables and nontradables, with an increase in the index raising real household wealth and appreciating the ERER.

56. Since many of these fundamental determinants of the ERER are difficult to measure directly, proxies (which are highly imperfect in some cases) are used for empirical investigation. For the differential productivity growth in the Balassa-Samuelson effect, a time trend is often used, while the ratio of government investment to GDP (where investment is taken to be relatively import (tradable) intensive) can be a useful proxy for the composition

of government expenditure. Proxies for the external environment include: a terms of trade index; an index of Japanese unit labor costs (a rise in which triggers foreign direct investment inflows and causes an equilibrium real appreciation); world real interest rates; and the foreign trade ratio (to proxy for openness and the degree of trade liberalization). The availability of these variables limited the sample to the period from the first quarter of 1979 through the third quarter of 1998.

57. Of all these fundamentals, only three were found to belong to the final equilibrium relationship, identified as a cointegration relationship by the method of Johansen (1988) and reported in Table 5. Global real interest rates (measured by the average real interest rate for the U.S. and Japan) entered the equation with a positive sign, consistent with our priors given Singapore's net creditor position. A rise in Japanese unit labor cost, which was found to play an important role also in Montiel's (1997) study of ASEAN ERERs (including Singapore), appreciates the ERER, as the resulting foreign direct investment inflows have a similar effect on the ERER to that of an increase in net transfers from abroad. Finally, the rise in the property price index is associated with an appreciation of the equilibrium real exchange rate, reflecting wealth effects which stimulate demand for nontradables.

Table 5. Equilibrium Relationship for the Real Exchange Rate

Variables	Coefficient	(Standard Error)
Global interest rate (in percent)	0.081	(0.012)
Japanese unit labor cost (in log)	0.890	(0.328)
Property price (in log)	0.259	(0.057)

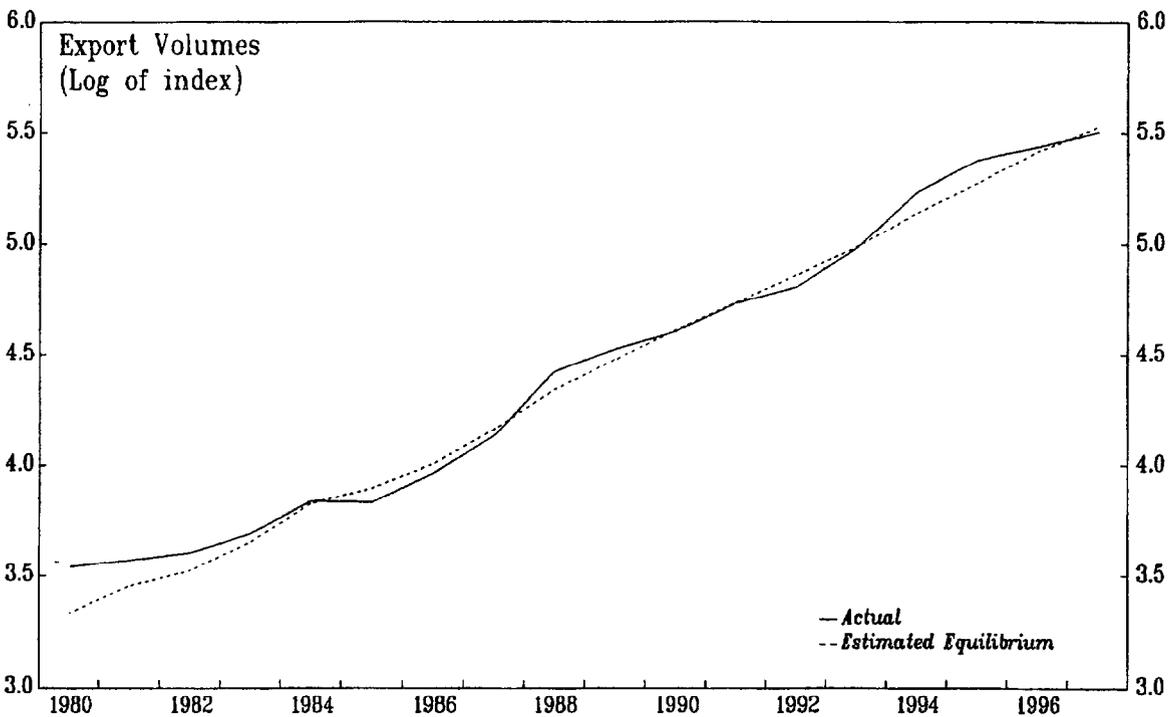
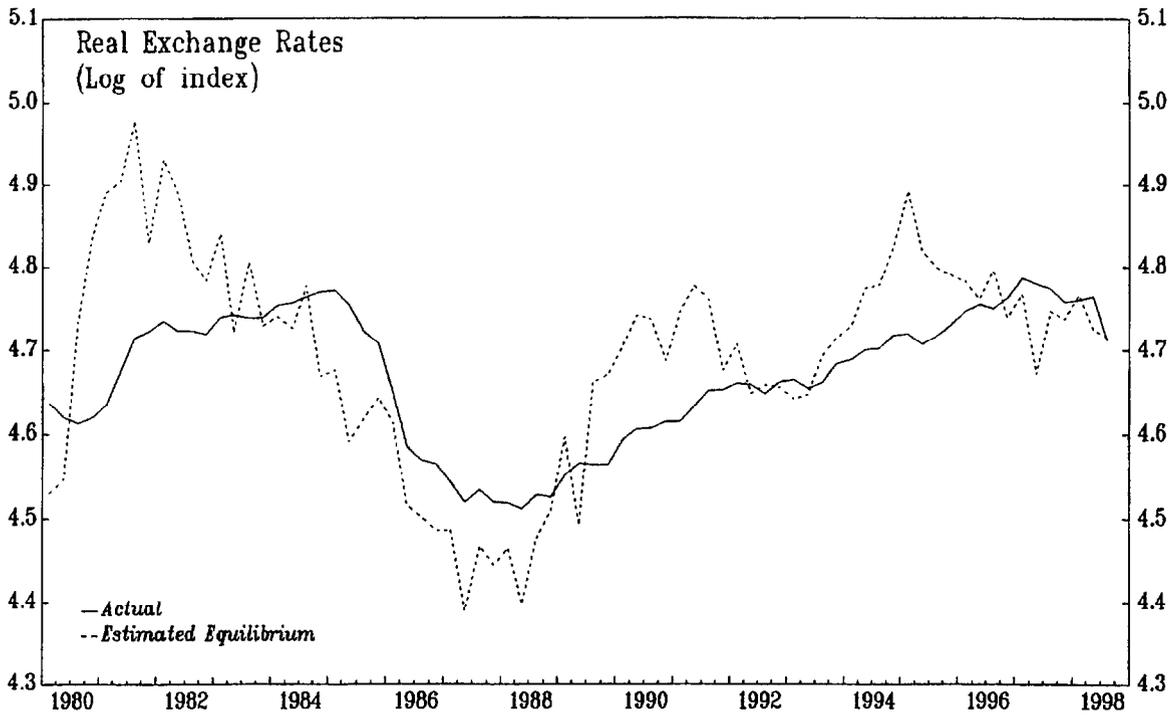
Notes: The preferred number of cointegrating vectors is one. Coefficients have been normalized so that the real exchange rate is on the left hand side.

Source: Staff estimates

58. The actual real exchange rate (ARER) and the ERER are illustrated in Chart 3. The graph reveals periods of modest overvaluation between 1984 and 1988 followed by two relatively short-lived episodes of undervaluation during the 1990s. These results are consistent with those of Montiel (1997), which covered the period through 1994 and used a somewhat different set of fundamentals. Most important, from the current policy perspective, the ARER has closely tracked the ERER during the period from 1997 to the third quarter of 1998, and is virtually equal to the ARER at the end of the sample (the third quarter of 1998).

SINGAPORE

EXCHANGE RATES AND EXPORT VOLUMES;
ACTUAL AND EQUILIBRIUM VALUES, 1980-98



Sources: IMF: IFS, INS; and staff estimates.

D. HAVE EXPORTS UNDERPERFORMED?

59. In this section, an attempt is made to estimate a simple time-series model of the determinants of Singapore's export volumes, in order to determine whether recent export performance has been worse than would be expected based on the benchmark provided by a standard export specification. While both relative prices and foreign demand were considered as potential determinants of Singapore's exports, the relative price variable was not found to be statistically significant. As a result, the equilibrium relationship (Table 6) found that foreign income (weighted by export shares) was the only statistically significant determinant of Singapore's export volumes in the long-run, with an income elasticity of 2.56. These results are broadly consistent with the findings of Bayoumi (1996), which also rejected relative prices as a determinant of exports in the export specification for Singapore.

Table 6. Equilibrium Relationship for Export Volumes

Variables	Coefficient	(Standard Error)
Foreign Income (in log)	2.559	(0.081)

Note: The real exchange rate is statistically insignificant, in consistency with previous studies.

Source: Staff estimates

60. If Singapore's exports were underperforming over the past year or so (relative to the benchmark provided by the model), this would show up as a large residual (actual below estimated exports) at the end of the sample. In 1998, based on the estimated income elasticity and estimated growth in foreign income, the warranted growth in export volumes according to the model would be about minus 5 percent, significantly worse than actual performance. If anything, therefore, Singapore's exports would appear to have overperformed slightly rather than underperformed significantly in 1998, given the deterioration in the external environment.

E. CONCLUSION

61. This note has surveyed a range of indicators of Singapore's external competitiveness, which suggest that Singapore continues to enjoy adequate international competitiveness. The analytical section of the paper, which attempted to explore the relationship between Singapore's equilibrium real exchange rate and the actual real exchange rate, also found that the latter closely tracked the former, including over recent quarters. The note concluded that the recent deterioration in export performance was likely to be largely attributable to the deterioration in the external environment, especially foreign demand. This deterioration, therefore, can be expected to be cyclical, rather than structural in nature.

REFERENCES

- Bayoumi, T., 1996, "International Trade and Real Exchange Rates" in *Exchange Rate Movements and Their Impact on Trade and Investment in the APEC Region*, ed. by Takatoshi Ito et al (Washington: International Monetary Fund).
- Clark, P. et. al eds., 1994, *Exchange Rates and Economic Fundamentals* (Washington: International Monetary Fund).
- Johansen, S., 1988, "Statistical Analysis of Cointegration Vectors," *Journal of Economic Dynamics and Control*, 12, pp. 231-254.
- Krugman, P., 1995, "What Do We Need to Know about the International Monetary System?" in *Understanding Interdependence*, ed. by P.B. Kenen, Princeton University Press.
- Montiel, P., 1997, "Exchange Rate Policy and Macroeconomic Management in ASEAN Countries" in *Macroeconomic Issues Facing ASEAN Countries*, ed. by J. Hicklin et al (Washington: International Monetary Fund).
- Sarel, M., 1997, "Growth and Productivity in ASEAN Countries," IMF Working Paper 97/97 (Washington: International Monetary Fund).