SINGAPORE'S EXCHANGE RATE POLICY

Monetary Authority of Singapore
February 2001

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FEBRUARY 2001

1 Introduction

1.1 This note traces the behaviour of the Singapore dollar (SGD) exchange rate since the adoption by the Monetary Authority of Singapore (MAS) of an exchange rate-based monetary policy in the early 1980s and addresses the following questions:

- How have we avoided volatile movements in our own exchange rate?

- How have we coped with the large swings in the currencies of the industrialised countries and minimised its disruptive effects on the economy?

- Why have we not chosen to either fix or freely float our exchange rate?

- What gives our system credibility?

1.2 Before answering the questions posed, we first describe the movements of the SGD exchange rate during the last 20 years.

2 Characterising Movements in the Exchange Rate

2.1 Since 1981, the SGD exchange rate has been on an appreciating trend against the main global currencies. Between Mar 81 to Sep 2000, the SGD appreciated by about 20% against the US dollar (USD) and about 25% against the Deutsche Mark (DM).[1] Given movements between the USD and Japanese Yen (JPY), this translates to a depreciation of about 40% against

[1] From the period 1999 onwards, the DM exchange rate is imputed.

the JPY. The SGD has also largely appreciated against the regional Asian currencies.

Box Item 1: Features of Singapore's Exchange Rate System

Since 1981, monetary policy in Singapore has been centred on the management of the exchange rate. The primary objective has been to promote price stability as a sound basis for sustainable economic growth. There are four main features of the exchange rate system in Singapore.

First, the Singapore dollar is managed against a basket of currencies of our major trading partners and competitors. The various currencies are given different degrees of importance, or weights, depending on the extent of our trade dependence with that particular country. The composition of the basket is revised periodically to take into account changes in Singapore's trade patterns.

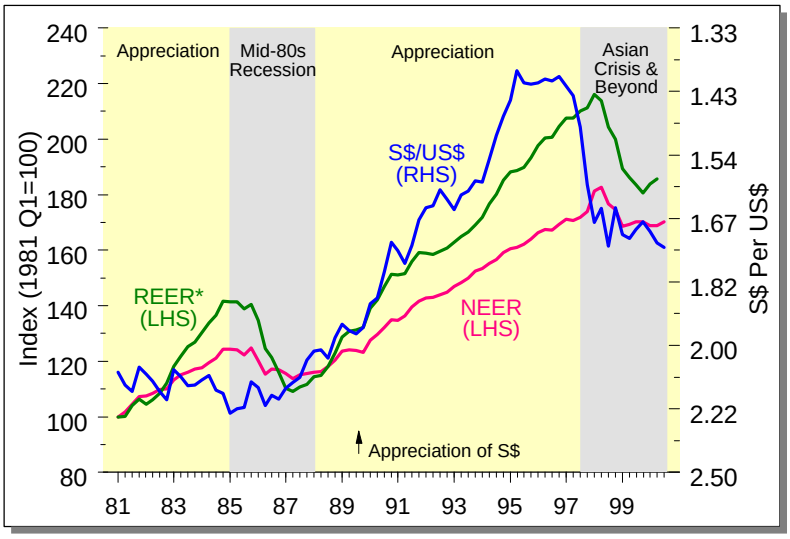
Second, the MAS operates a managed float regime for the Singapore dollar. The trade-weighted exchange rate is allowed to fluctuate within an undisclosed policy band, rather than kept to a fixed value. The band provides flexibility for the system to accommodate short-term fluctuations in the foreign exchange markets as well as some buffer in the estimation of the country's equilibrium exchange rate, which cannot be known precisely. MAS' intervention operations generally 'lean against the wind'. If the exchange rate moves outside the band, MAS will usually step in, either buying or selling foreign exchange so as to steer the exchange rate back within the band.

Third, the exchange rate policy band is periodically reviewed to ensure that it remains consistent with the underlying fundamentals of the economy. It is important to continually assess the path of the exchange rate in order to avoid a misalignment in the currency value. The regular review also allows MAS the flexibility to accommodate short-term volatility in financial markets. The length of the policy review cycle is typically three months.

Fourth, the choice of the exchange rate as the intermediate target of monetary policy implies that MAS gives up control over domestic interest rates (and money supply). In the context of free capital movements, interest rates in Singapore are largely determined by foreign interest rates and investor expectations of the future movements in the Singapore dollar. Domestic interest rates have typically been below US interest rates and reflect market expectations of an appreciation of the Singapore dollar. (Chart 8b on page 13.)

2.2 On a trade-weighted basis, the SGD has appreciated against the exchange rates of its major trading partners and competitors since 1981, reflecting rapid economic development, high productivity growth, and a high savings rate. (This is further discussed in Section 3.) The S$ Nominal Effective Exchange Rate (NEER) appreciated by 74%, while the S$ Real Effective Exchange Rate (REER) appreciated by 92% between end-1980 and Q2 2000. (Box Item 1 describes the features of Singapore's exchange rate system.) There were four distinct phases in the movement of the NEER and REER as highlighted in Chart 1. The appreciation of the REER between 1981-85 and 1988-97 coincided with rapid economic growth and tightening labour market. Given MAS' policy of keeping inflation low, the nominal exchange rate was allowed to appreciate. In contrast, during the recession in the mid-80s and the Asian crisis, weakening economic conditions warranted an easing of the NEER to facilitate the recovery of the economy. (A more detailed analysis of exchange rate policy over the past 20 years is provided in Box Item 2.)

Chart 1
SGD Exchange Rate Movements



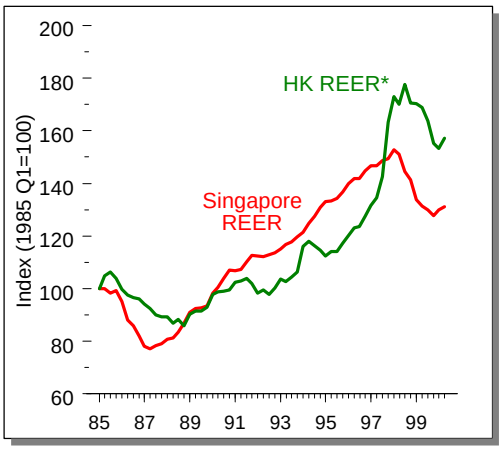
* Using export competitiveness weights and deflated by relative unit labour costs.

2.3 A comparison with Hong Kong's exchange rate regime is instructive. As in Singapore's case, Hong Kong's real exchange rate has also appreciated steadily since the late-80s in a period of rapid economic growth. In fact, Hong

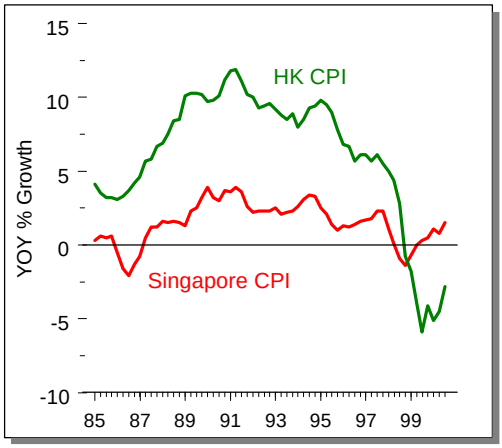
Kong experienced a larger appreciation of the real exchange rate than Singapore from 1985-99, although much of this occurred during the Asian crisis.[2] (Chart 2.) But since the Hong Kong dollar is pegged to the USD, the adjustment to Hong Kong's economy has fallen on prices. Inflation in Hong Kong averaged 7.7% between 1985-97 compared to 1.8% in Singapore. Conversely, during the Asian crisis, Hong Kong experienced severe deflation.

Chart 2
Comparison of Singapore and Hong Kong

(a) Real Exchange Rates**



(b) CPI inflation



* MAS computations.
** Using export competitiveness weights and deflated by unit labour costs.

2.4 Reflecting MAS' policy of targeting the NEER, movements of the trade-weighted exchange rate have been relatively stable. Volatility as measured by the standard deviation of the nominal effective exchange rate, was significantly lower for the SGD compared to that for the USD or JPY. The standard deviation of the SGD NEER was 1.48% between Q1 81 to Q2 2000, compared to 3.52% for the USD and 4.61% for the JPY.[3]

2.5 At the same time, movements of the SGD against the major currencies, especially against the USD, have been less volatile than the

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[2] The REER series published in the Hong Kong Monetary Authority's (HKMA) Quarterly Bulletin (Nov 2000) also shows a clear uptrend in the REER from the latter part of the 1980s.

[3] The NEER series for the USD and JPY are based on the quarterly series published by the IMF.

movements among the major currencies. Table 1 shows that the SGD has been less volatile with respect to the other currencies, than if it had been pegged to any of the main currencies. For example, if the SGD were pegged against the USD, the monthly standard deviation against the JPY and DM would have been 3.42 and 3.25 instead of 3.01 and 2.92.

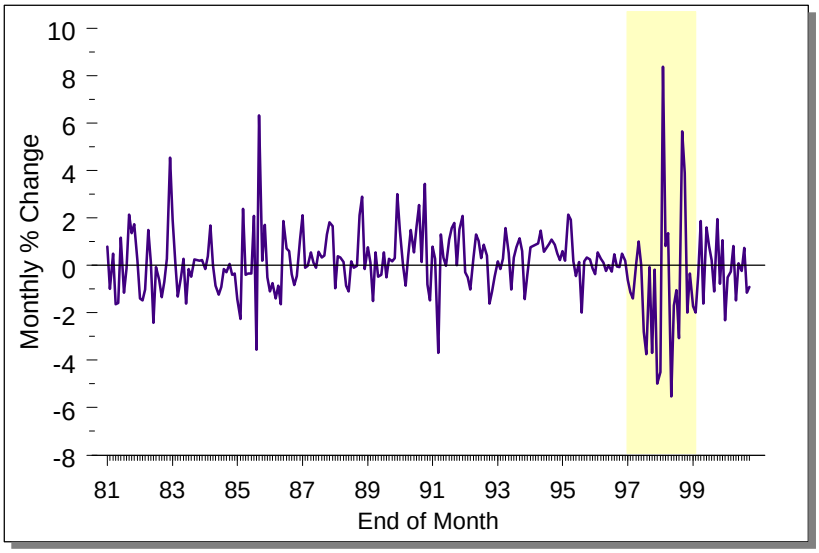
Table 1
Standard Deviation of Currency Movements since 1981

(%)

NEER	S$/US$	S$/Yen	S$/DM	US$/Yen	US$/DM	DM/Yen
1.48	1.58	3.01	2.92	3.42	3.25	2.98

2.6 Nevertheless, the volatility of the SGD against the major currencies was quite significant as seen from the large swings against the USD, DM and JPY. (Chart A in Box Item 2.) For example, between mid-1997 and early 1998, the SGD depreciated by about 20% against the USD. There was also a noticeable increase in exchange rate volatility during this period. (Chart 3.)

Chart 3
Volatility in S$/US$ Exchange Rate



Box Item 2: Phases in the Movement of the Exchange Rate

1981-85: Oil Shock to 1985 Recession

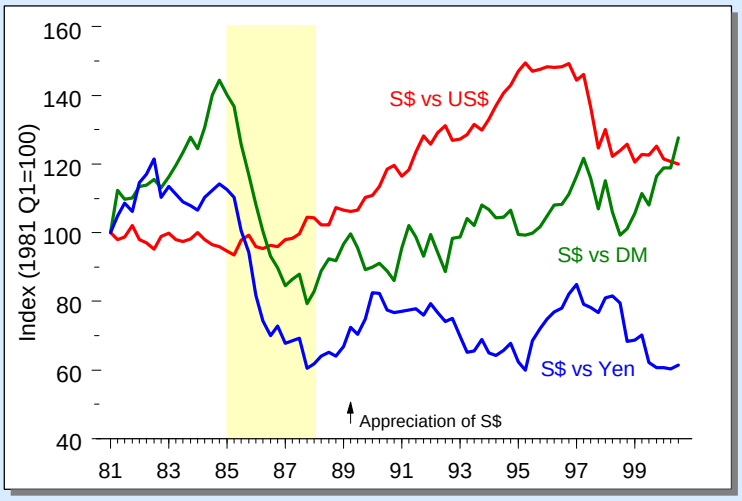
The booming economy in the early 1980s led to escalating wage costs and an appreciation of the REER. The MAS allowed the NEER to appreciate to contain inflationary pressures. The NEER appreciated by 30% during this period or 5.0% per year.

1985-88: Recession and Deflationary Pressures

In 1985, external economic conditions suddenly changed, plunging the economy into a sharp recession. For the economy to regain competitiveness, the REER had to come down. The Government decided to effect most of the adjustment in the REER in the real economy by reducing business and wage costs, particularly through a cut in employer pension contributions. The NEER was allowed to depreciate modestly. Fortunately world oil and commodity prices were declining, so despite the lower NEER, inflation was very low (negative in both 1986 and 1987).

The easing of the NEER took place in the context of a strengthening S$/US$ exchange rate, which reflected the weakening of the USD following the Plaza Accord of 1985. While the SGD strengthened by 12% against the USD between 1985-88, it weakened by 44% against the Yen. It also depreciated sharply against the DM by 36% over this period. (Chart A.)

Chart A
Movements of S$ against Selected Industrial Currencies



1988-June 1997: Signs of Overheating

The second notable phase of appreciation of the REER and NEER began in mid-1988 and lasted almost a decade, reflecting strong external demand and GDP growth that averaged 9.2% per year between 1988-97. The NEER rose by about 50% between 1988-97 or 4.1% per year, to keep inflationary pressures in check. Inflation averaged 2.4% between 1988-97. The SGD appreciated steadily against the USD, from S$2.02/US$ in Jan 88 to S$1.40/US$ in Jun 95, where it remained relatively stable over the next two years.

June 1997 Onwards: The Asian Crisis and Beyond

The onset of the Asian crisis and the subsequent sharp depreciation of the currencies of the regional economies affected Singapore. Initially the NEER actually strengthened, because although the SGD depreciated sharply against the USD (weakening from S$/US$1.43 in Jun 97 to S$/US$1.76 in Oct 2000), it appreciated significantly against the regional currencies (the Thai baht, the Malaysian ringgit, and especially the Indonesian rupiah). In mid-98, the crisis deepened and the Singapore economy started to weaken. In the absence of inflationary pressures, MAS eased exchange rate policy. With the recent strong recovery of the economy, MAS has shifted to a pre-emptive stance on inflation, allowing for a trend appreciation of the NEER. However, the S$/US$ exchange rate has been more volatile, reflecting movements among the major currencies.

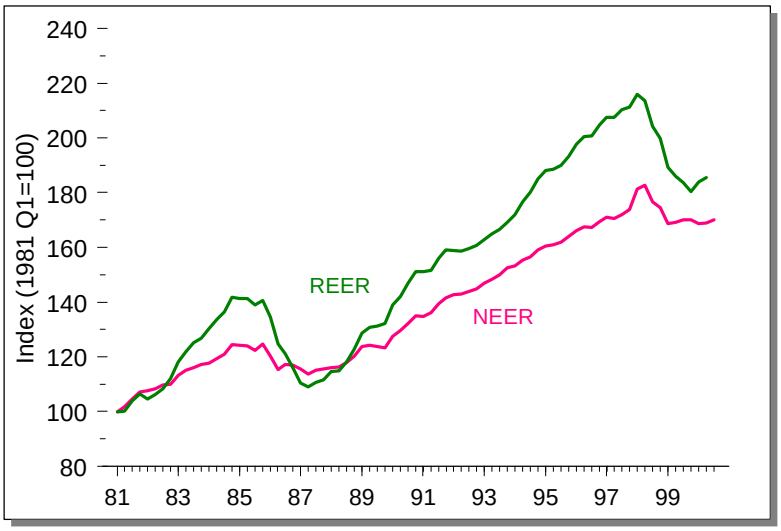
3 How Do We Avoid Volatile Changes in Our Exchange Rate?

3.1 The previous section made two observations. First, the SGD exchange rate has, over the long-term, appreciated against those of its major trading partners. Second, short-term movements in the SGD may buck this trend on account of economic disturbances and changing market expectations and dynamics. This section discusses both points.

Long Run

3.2 Over the long run, the SGD exchange rate has been on an appreciating path, both in nominal and real terms. (Chart 4.)

Chart 4
Movements in NEER and REER



3.3 The appreciation of the exchange rate has curbed both imported and domestic inflation. Domestic inflation averaged 2.3% between 1981-97, less than external inflation which averaged 4.6% over the same period. Further, at times of rapid economic growth when the economy was at risk of overheating, an appreciating SGD has dampened external demand and moderated wage pressures, thus cooling domestic demand. The real appreciation of the SGD has also provided the impetus to exporters to continually move up the value chain in order to remain competitive.

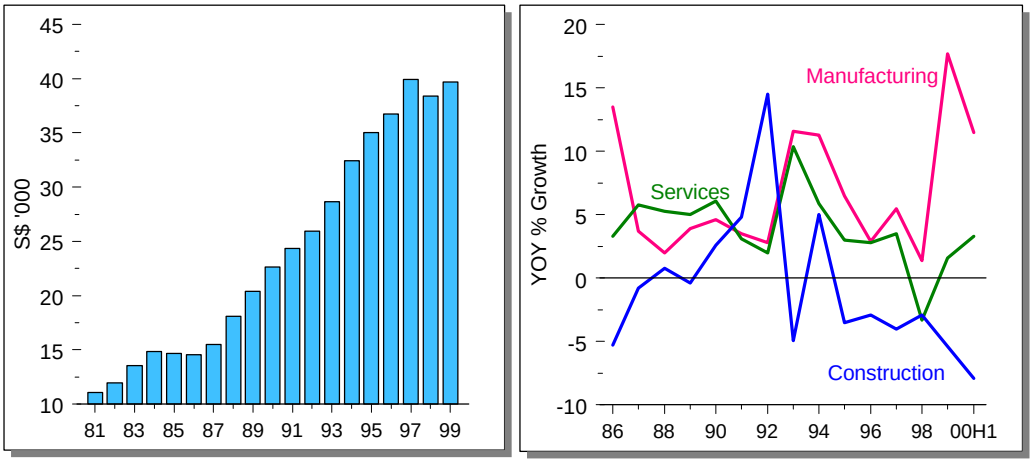
3.4 Two basic reasons explain the long-term appreciation in the real exchange rate:

- First, Singapore's economic development and the transformation of the economy since the early 1980s. One measure of this transformation is per capita income, which has increased from about

S$11,000 (US$5,200) in 1981 to S$40,000 (US$23,000) in 1999. (Chart 5a.) Structural change in the economy, involving the evolution in economic activity from a predominantly low-skill, labour-intensive base towards greater capital and knowledge-intensive activity has meant a continuous shift in the basis of Singapore's competitiveness in international markets.[4] It has implied an appreciation in the equilibrium REER as Singapore competes increasingly with economies at the higher end of the income ladder. The appreciation of the REER also reflected disparities in productivity growth between the traded and non-traded sectors, and the shift in relative prices between the two sectors.[5] (Chart 5b.)

Chart 5

(a) Per Capita GNP **(b) Productivity Growth**



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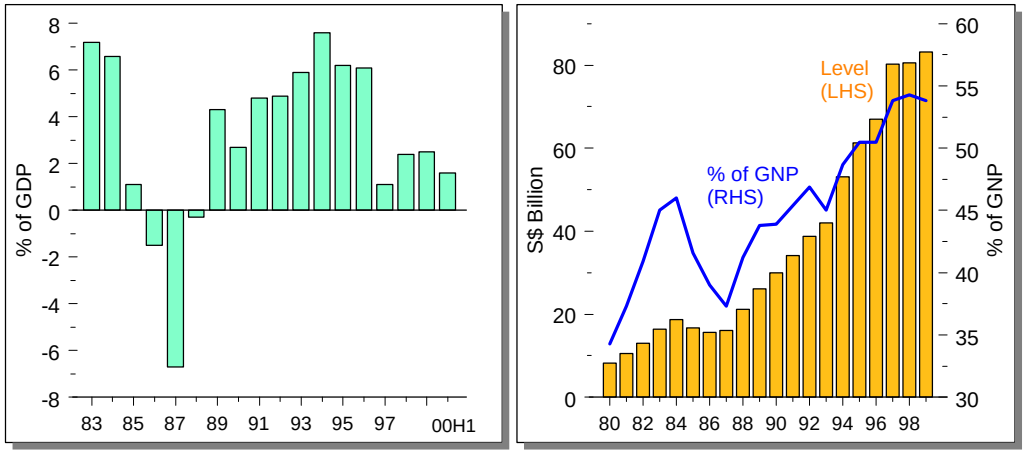
4 Manufacturers have remained competitive by shifting production to more capital- and skill-intensive products. For example, electronics exports have moved from lower-end consumer electronics in the 1970s to products such as disk drives, PCs, and printed circuit boards since the 1980s, and more recently into wafer fabrication.

5 Productivity in the manufacturing sector has grown by an average of 6.5% since 1986 compared to 3.9% in the services sector. This may have contributed to an appreciation in the real exchange rate via the Balassa-Samuelson effect, which results from higher productivity growth in the tradable sector compared to in the non-tradable sector. With prices in the tradable goods sector tied down by world prices, higher productivity leads to a rise in wages. Wages in the non-tradable goods sector also rise in order to keep in pace. However, in order to do be able to raise wages when productivity has not risen, producers in the non-tradable goods sector need to increase their prices. With one component of the CPI constant and the other rising, the country's overall price level rises relative to that of its main trading partners.

- Second, national thriftiness has led to large current account surpluses. Substantial public sector surpluses and the high private savings rate have led to persistent current account surpluses since the mid-80s.[6] (Chart 6.)

Chart 6

(a) Fiscal Surplus[7] **(b) Savings Rate**



- Prior to the mid-80s, the current account was in deficit. But even then, the overall balance of payments was in surplus. The current account deficit was the result of imports of capital goods, financed by foreign direct investment. (Chart 7.) FDI inflows have averaged 9.6% of GDP since 1981 – which is large compared to many countries. (Table 2.) Overall, Singapore's healthy balance of payments has resulted in reserve accumulation and a strong SGD.

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6 The Government has been running fiscal surpluses averaging 4.3% of GDP except during the economic downturn in 1985. In addition to the government budget, the rest of the public sector (statutory boards and government-linked companies) also accumulates surpluses. The high private savings rate partly reflected compulsory savings through the Central Provident Fund.

7 The fiscal surplus is defined as operating revenue minus total expenditure.

Chart 7

(a) Balance of Payments **(b) Foreign Direct Investments**

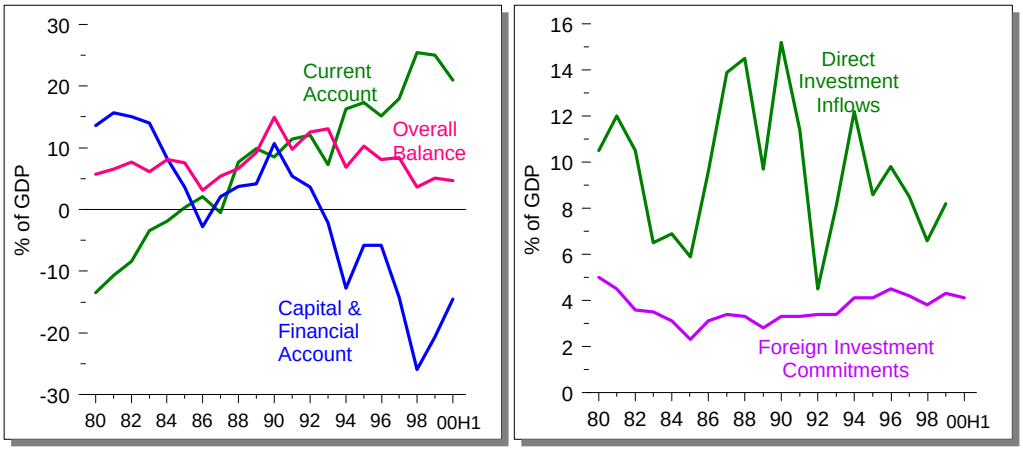

Table 2
Comparison of FDI Inflows to the Regional Economies

(% of GDP)

Year	S'pore	Korea	Taiwan	M'sia	Thailand	Indonesia	Philippines
1981-90	10.5	0.3	0.5	3.4	1.2	0.4	0.7
1991-99	8.7	0.7	0.6	6.3	2.5	1.1	1.8

Short-Run

3.5 This section considers short-run movements in the SGD that may run counter to fundamentals given changing market expectations and dynamics.

3.6 To smooth short-run volatility and avoid misalignment in the exchange rate, MAS intervenes in the market from time to time. MAS tries to guide the exchange rate in line with the fundamentals, and not contrary to them. In general, the intervention operations aim to keep the trade-weighted value of the SGD within a specified policy band. The band provides flexibility, and minimises the need for constant intervention.

3.7 An institutional feature that has supported the effectiveness of MAS' intervention is the government's fiscal surpluses and the net surpluses of the

Central Provident Fund (CPF).[8] These surpluses are placed in deposits with MAS, thereby withdrawing liquidity from the banking system. This naturally puts pressure on the exchange rate to appreciate. The MAS engages in either money market or foreign exchange intervention operations to offset this liquidity withdrawal. However, this mechanism gives the MAS an effective means to contract liquidity when necessary to strengthen the exchange rate.

3.8 Internal reviews have shown that MAS' interventions – which have tended to 'lean against the wind' – have generally been successful in keeping the exchange rate within its policy band. For example, for most of the 1990s, MAS intervened to moderate the NEER's appreciation. In contrast, during the Asian crisis, MAS intervened to support the currency in order to prevent the exchange rate from falling below the policy band.

3.9 Several factors have discouraged speculative forays against the SGD, and made MAS' interventions to guide the exchange rate effective:

- The strong macroeconomic fundamentals that underpin the SGD's strength. In particular, prudent fiscal policy has absolved the MAS of the need to finance the Government, and allowed it to concentrate on its primary responsibility of maintaining price stability.

- MAS' credibility with the market, earned through its track record running a monetary policy that has yielded low inflation and sustained economic growth over a long period.

- A currency value that is basically aligned with underlying fundamentals.

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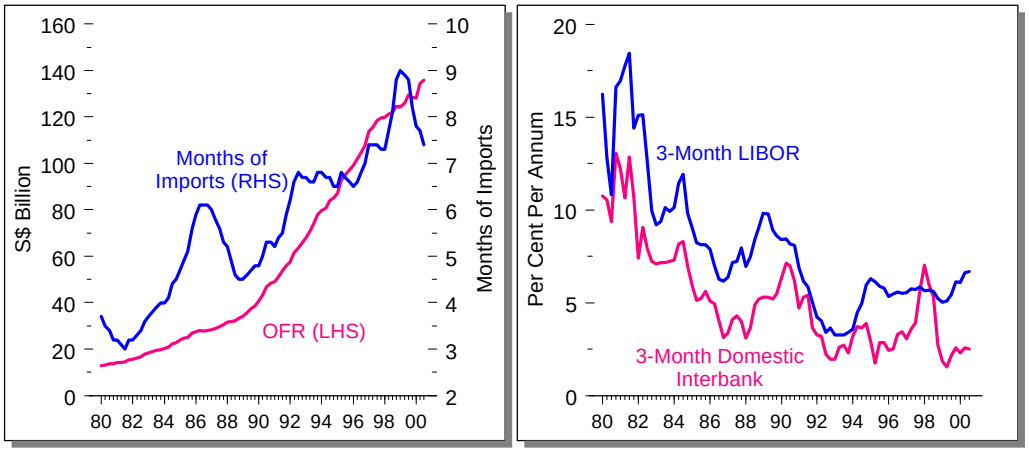
[8] The Central Provident Fund (CPF) is a mandatory defined contribution savings scheme for Singapore residents.

- MAS' large foreign reserves. (Chart 8a.)

- The non-internationalisation policy on the SGD.[9]

3.10 Singapore was less vulnerable than the crisis economies to the vicious cycle of currency depreciation, asset value destruction and capital flight. This is because the public sector in Singapore has no foreign debt, while banks and corporates have generally not borrowed from abroad in foreign currency given the low domestic interest rates. Interest rates in SGD instruments have generally been lower than corresponding USD rates. (Chart 8b.) As a result, domestic banks and corporates did not suffer from the currency and maturity mismatches that existed in other emerging market economies.

Chart 8
(a) Official Foreign Reserves (b) Domestic vs. Foreign Interest Rates



[9] The S$ non-internationalisation policy limits the borrowing of S$ by non-residents for currency speculation. The aim is to prevent the exchange rate from being destabilised, and to ensure the effective conduct of our monetary policy. Under the non-internationalisation policy, non-residents can borrow S$ freely for purposes of trade and investment in Singapore. Non-residents may also borrow S$ to finance their activities outside Singapore provided the S$ proceeds are swapped into foreign currency. As might be expected under an open capital regime, empirical studies show that the interest parity condition holds for the SGD – domestic interest rates are almost entirely determined by parity with offshore USD interest rates adjusted for exchange rate expectations.

4 How Have We Coped with Large Swings in the Currencies of the Industrial Countries?

4.1 As shown in Chart A of Box Item 2, Singapore is not insulated from relative movements of currencies in the trade-weighted basket. Often third-country currency volatility (such as swings in the USD and JPY) has real economic consequences. In particular, because the SGD has tracked the USD more closely than the other major currencies, during periods when the USD was strong, e.g. the early 1980s, Singapore-based companies had found themselves losing competitiveness against companies in countries whose currencies had weakened against the USD. The effect of a strong USD was often exacerbated by the trend appreciation of the SGD against the USD. There was also an indirect impact on Singapore via a slowdown in regional demand from neighbouring economies, whose currencies were pegged to the USD. Volatile movements between the USD and JPY in the mid-1990s, for example, contributed to Southeast Asia's export slowdown in 1996-97 and the subsequent vulnerability to the Asian crisis.

4.2 The problem of sharp movements in the components of the trade-weighted basket is not unique to Singapore.[10] In truth, there is little Singapore can do about large movements in the major currencies. In the short-run, producers may respond in a number of ways including hedging their currency exposures. MNCs that operate in Singapore also respond to exchange rate fluctuations by exploiting their worldwide network, for example by using internal exchange rates on intra-firm transactions.

4.3 In the longer-run, competitiveness can only be maintained if firms increase productivity, create new products, and actively seek out new markets. Thus, even though divergence in third-country exchange rates does affect the competitiveness of individual exporters, the Government focuses on

[10] As pointed out in paragraph 2.5, the basket does help mitigate some volatility compared to a bilateral peg.

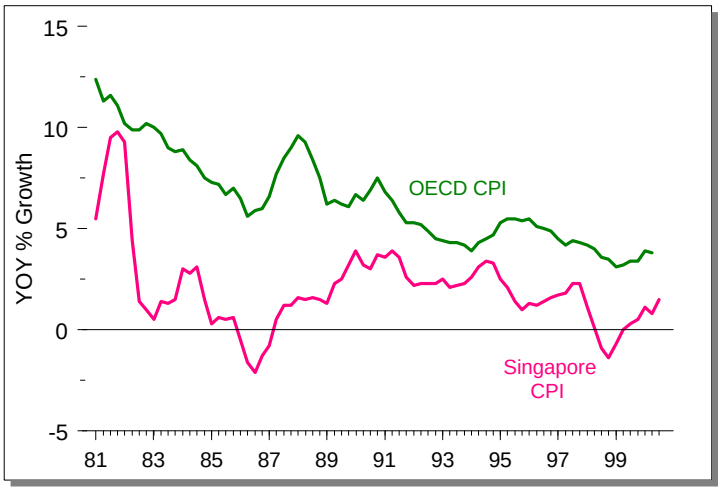
improving fundamentals rather than micro-managing the NEER to offset movements in global currencies.

5 Why is Singapore Different, i.e. Neither Float Nor Fixed?

5.1 Since the Asian crisis, there has been a growing consensus that the only sustainable exchange rate regime for emerging markets is either a currency board or a floating exchange rate regime. Singapore stands in contrast to this conventional wisdom. Why does MAS choose a managed float? The short answer is that this provides MAS with flexibility to deal with shocks while at the same time maintaining the purchasing power of the SGD.

5.2 A basic philosophy underlying Singapore's exchange rate policy is to preserve the purchasing power of the SGD, in order to maintain confidence in the currency and preserve the value of workers' savings, especially their CPF balances. Over the years, the managed float has served Singapore well in this respect. Inflation and interest rates have been low, and expectations are for the SGD to appreciate over time. (Chart 9.)

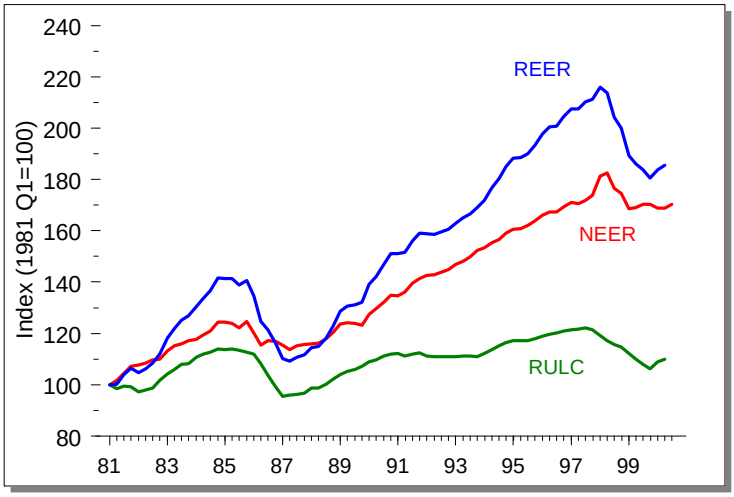
Chart 9
Singapore and OECD CPI Inflation



5.3 When economic conditions change, and it is necessary to reduce the real exchange rate, the Government prefers to do this by direct measures.

This includes reducing wages through the variable bonuses, and *in extremis* by reducing employer contributions to the Central Provident Fund.[11] This has happened twice: in the mid-1980s recession, and again in the Asian financial crisis. (Chart 10.) The Government believes that it is better to confront the issue squarely and persuade workers to accept a direct wage cut. If it glossed over the problem through a steeper SGD depreciation, workers would find out later that inflation had eroded the purchasing power of their wages. In fact their loss would be greater because most workers have accumulated substantial CPF savings denominated in SGD, whose real value would also shrink.[12] Workers would seek higher wage settlements to compensate, and the wage price spiral would soon erode away the temporary cost advantage. Worse, Singaporeans would lose confidence in the currency and the Government.

Chart 10
Decomposition of the REER



[11] To this end, the Government has implemented policies that sought to keep the real economy flexible so that it can adjust to external shocks. For example, following the mid-80s recession, the Government promoted a more flexible wage system, and built up variable bonuses as a component of salaries, which could be cut back in difficult times such as during the Asian crisis.

[12] As at end-1999, total CPF balances due to active members amounted to S$66.7 billion or an average of S$54,500 per active member. This compared to the average monthly wage of S$2,800.

Why Not Float?

5.4 A floating exchange rate regime would prevent the Government from meeting this fundamental objective. It would also not be appropriate for a small and open economy like Singapore for two other reasons.

5.5 First, MAS has found the exchange rate to be the most effective instrument to keep inflation low. Other possible intermediate targets, in particular interest rates, are less effective in influencing real economic activity and domestic inflation outcomes. The main advantage of a floating regime – the ability to pursue an independent monetary policy – is less relevant to Singapore than to other larger, less open economies with domestic policy imperatives.

5.6 Second, a freely floating SGD may become too volatile in the short-run. Worse, the currency could become misaligned over a sustained period of time, leading to resource misallocation.

Why Not Fixed?

5.7 First, the Singapore economy has highly diversified trading links, substantial fiscal surpluses, and a long track record of low inflation. Both inflation and interest rates have been lower in Singapore than in the US. There is thus little need for a nominal anchor for the SGD to manage inflationary expectations, or for the discipline imposed by the monetary policy of a foreign country – most likely the US – to which the SGD is pegged.

5.8 Second, there would be a cost resulting from the adoption of the anchor country's monetary policy because of the divergence in business cycles. This is shown by Hong Kong’s example. While Hong Kong's business and economic cycle has become increasingly aligned with that of China, its

peg to the USD ties its monetary policy closely to that of the US. During the early 1990s, the Hong Kong economy was growing rapidly and warranted tighter monetary conditions, but interest rates fell in line with those in the US, which was experiencing an economic slowdown. This contributed to an asset price bubble. Then during the Asian crisis, when the regional currencies depreciated sharply, the Hong Kong dollar experienced a sharp involuntary appreciation in trade-weighted terms. The adjustment was severe, especially in asset price deflation.

5.9 Third, a fixed exchange rate would make it more difficult for Singapore to absorb shocks from abroad, and adjust the value of the SGD exchange rate in line with changes in the country's underlying macroeconomic fundamentals. This would be so even if the SGD were pegged to a trade-weighted basket rather than a single anchor currency. For example, during the Asian crisis from late-97 to early-98, when the regional economies depreciated sharply against the USD, the SGD too depreciated against the USD, but by much less. In trade-weighted terms the SGD actually appreciated moderately, because MAS exercised flexibility to allow the NEER to rise above the policy band. If the SGD had been required to remain strictly within the policy band, or had been pegged to the NEER, the MAS would have had to force the SGD to depreciate much more against the USD, at a time when market sentiment was weak. This could have resulted in a loss of confidence in the SGD. Instead, MAS only brought down the NEER to within the policy band months later, when financial markets had stabilised and conditions had become more conducive.

6 Concluding Remarks

6.1 The strategy underlying Singapore’s monetary policy has been determined by two critical groups of factors. The first is the small and open nature of the Singapore economy, both real and financial. This means that the exchange rate is the most effective policy instrument for maintaining domestic

price stability. The second is the sound macroeconomic fundamentals and prudent fiscal policy in particular. The Government's avoidance of fiscal deficits and its commitment to preserving low inflation have allowed the MAS to concentrate on its primary responsibility of maintaining price stability and reinforced the effectiveness of its monetary policy. Underpinning the system is the credibility that the MAS has built up over the years in achieving its stated objective of low inflation.

6.2 The managed float has been flexible enough to accommodate changes in the equilibrium value of the SGD and prevent the currency from becoming seriously misaligned. For example, from 1985-97, the SGD was generally on a secular appreciating path against the USD and the currencies of the other trading partners. Econometric studies show that this was in line with the appreciating trend of the equilibrium real exchange rate, reflecting the strengthening in economic fundamentals during the period. Similarly, with the onset of the Asian financial crisis, the exchange rate depreciated with the fall in the equilibrium exchange rate.

6.3 The exchange rate system has also helped to mitigate the adverse effects of excessive short-term volatility in financial markets on the real economy. As our experience during the Asian financial crisis shows, Singapore’s policy of managing the exchange rate within an undisclosed band has provided us with the flexibility to cope with periods of exceptional volatility in foreign exchange markets and uncertainty in economic conditions.