

YI NA (艺娜)
JANICE LEE LI ENG (李丽英)
GABRIEL RÜECK

SINGAPORE MACROECONOMY

PROJECT REPORT



Nanyang Business School

B6013: Economic Analysis



Picture 1: Singapore - a powerful economy in a tiny island

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Singapore Macroeconomy

GROUP ASSIGNMENT

A DIFFERENT WORLD

The sweeping changes of the last five years have great impact on Singapore:

1. The 1997 Asian financial crisis have overwhelmed Singapore and the South East Asia region.
2. The global economic conditions of the world's three largest economies – United States, Japan and Germany – experienced sharp, synchronized downturns.
3. September 11 and the recent Bali terrorist attacks which Singapore have learnt how real and close is the terrorist danger rooted in the region and threatening security. The political and security risks make Northeast Asia more attractive for investors as compared to South East Asia.
4. Business cycle has shortened and swings have become more volatile and extreme. Singapore being exceptionally dependent on foreign trade was hard hit especially in its key electronics sector.

Singapore was directly exposed to the above external shocks and in 2001, Singapore's GDP shrank by 2%, the worst decline since independence. Many Singaporeans lost their jobs.

WORLD COMPETITIVENESS

Assessment Factors	2001	2002	
(1) Economic Performance	3	15	↓
(2) Government Efficiency	1	1	
(3) Business Efficiency	10	11	↓
(4) Infrastructure	5	7	↓

Table 1: Singapore's Ranking in the World Competitiveness Report

The recent World Competitiveness Yearbook (WCY) 2002 [2] released on 30 April 2002 ranked Singapore as the 5th most competitive economy. Singapore has slipped three notches from 2nd position last year. The WCY divides the national environment into four main Competitiveness Factors, namely:

1. Economic Performance (macro-economic evaluation of the domestic economy)
2. Government Efficiency (extent to which government policies are conducive to competitiveness)
3. Business Efficiency (extent to which enterprises are performing in an innovative, profitable and responsible manner)

4. Infrastructure (extent to which basic, technological, scientific and human resources meet the needs of business).

The primary culprit for Singapore's fall in overall rankings is the dismal showing in the economic performance factor. Singapore's rank for economic performance falls sharply due to the recession last year. Analysing the detailed indicators, Singapore is ranked 47th and 48th for real GDP growth and real GDP per capita growth respectively. This is in stark contrast to the 2nd and 4th position attained in last year's ranking. Singapore's rank in employment growth also suffers a drastic change from 2nd to 48th position.

ECONOMIC REVIEW COMMITTEE (ERC)

The establishment of the Economic Review Committee (ERC) to critically review Singapore's competitiveness is therefore both timely and crucial. The monetary and fiscal policies are now geared towards Singapore's strategic aim to restructure the economy to prepare for the challenges ahead. The key policies recommended by the Economic Review Committee to meet the challenges are [1]:

1. Develop a vibrant private sector to promote enterprise and growth.
2. Create a pro-business and stable environment whereby business cost and tax burden must be kept as light as possible. The move is towards more indirect tax so as to encourage people to work hard and create wealth.
3. Maximise Singapore's own human capital and attract more global talent.
4. Nurture outstanding domestic companies into significant international players.
5. Diversify its overdependence on electronics sector by enhancing other high value added sectors such as biotechnology, education, health care
6. Government's commitment for deregulation of businesses.
7. Government to pursue sound macroeconomic policies, including fiscal policy – the government budget; and monetary policy – the exchange rate.

The global environment has changed. Singapore has to make significant adjustments to its economic strategies or its future growth rates could be permanently reduced.

PHILOSOPHY OF FISCAL POLICY

Fiscal policy in Singapore is directed primarily at promoting long-term economic growth, rather than cyclical adjustment or the distribution of income. As such, the government has refrained from large unemployment benefits and price support schemes, preferring to pursue the route of job creation and free market competition in support of the Economic Review Committee recommendations.

BUDGET SURPLUS

Singapore's prudent fiscal policy has led to budget surpluses averaging 5% of GDP over the past 10 years and also contributed to its high savings rate. Gross national savings rose from a modest 11% of GNP in 1965 to over 50% since 1995 [3]. Singapore's high domestic savings rate has allowed it to achieve one of the highest investment rates in the world without having to incur foreign debt. High domestic savings have also facilitated the maintenance of an ample stock of foreign reserves. This has served to boost investor confidence and provided a buffer against adverse economic shocks.

The present government's view is that it should continue with its policy of financial prudence and budget for modest surpluses over the business cycle. Sound fiscal policies also underpin the success of the monetary policies to maintain a strong Singapore dollar, which allows for low inflation and high living standards for Singaporeans. Fiscal discipline is a critical factor in securing investor confidence and lays the foundation for robust economic growth.

Reducing income tax rates will decrease government revenue. Unless GST make up at least part of this revenue loss, the government's ability to spend on security, social and infrastructure needs will be compromised and there will risk of a structural budget deficit.

Direction for future budget policy [4]:

1. Government seeks to maintain smaller budget surpluses in the future, so as to release resources to the private sector as the engine of growth.
2. The shift towards indirect taxes so as to provide for a more resilient tax base and make up for any shortfall in revenue.
3. Projections indicate that the government budget surplus would see an appreciable reduction over the next 5 years, if the corporate and personal income tax rates were cut to 20% and the GST rose to 5%. The revenue gain from increasing GST will offset less than half the revenue loss due to the cut in income taxes. Unlike the past years of high budget surpluses exceeding 5% of GDP, the proposed tax changes would result in a tighter budget position. However, the government would be able to maintain modest surpluses in the medium term.
4. Over time, the budget position should remain resilient in the face of potentially higher expenditure requirements as lower income tax rates stimulate enterprise and attract new economic activities into Singapore. It is difficult to quantify these longer-term fiscal impacts, but there is no reason to believe that they are trivial.

Fiscal conservatism, however, has not compromised the government's commitment to build and maintain a world-class infrastructure. Over the last three decades, development expenditure accounted for around one-third of government expenditure on average.

INTERNATIONALLY COMPETITIVE AND SOCIALLY EQUITABLE TAX SYSTEM

Taxation is an integral fiscal instrument. Taxes provide the main source of funding for government operations. In addition, tax policies help to promote social and economic objectives, for example, to encourage procreation, enhance the economic competitiveness and attract foreign investments in Singapore. The restructuring of the tax system in 2002 was one strategy to facilitate the transition of Singapore's economy towards a knowledge-based economy and foster innovation and creativity with two main priorities [4]:

1. To create jobs as many old jobs will not return as the global competition is keener.
2. To increase the economic pie for everyone.

Given the prevailing uncertainties in the economic environment over the medium-term, Singapore needs a tax system that helps to grow the economic pie for all to enjoy. This can be affected through across-the-board cuts in corporate and personal incomes taxes, and shifting towards greater reliance on indirect tax to make up for any shortfall in government revenue. A growth-oriented tax system is designed to promote economic growth. Faster growth, in turn, means better-paying jobs and higher standards of living for all Singaporeans. This is the best way to help the lower income groups on a sustained basis.

PRO-GROWTH TAX SYSTEM

The concept of a progressive tax system was popular in the 1950s and 1960s when people believed that governments could increase overall societal well-being by redistributing wealth and levelling down the more successful in society through taxation. These policies have generally resulted in inferior economic performance over the last few decades.

A growth-oriented tax system, characterised by lower corporate and personal income tax rates, will have immediate and longer-term beneficial effects on hard work, enterprise and investment. It offers companies higher after-tax returns on their capital and spurs local companies and entrepreneurs to venture into new businesses and markets.

Singapore survived and succeeded in the past through her ability to look ahead and anticipate change, and the nimbleness in moving quickly to seize new opportunities. The government believes that if they do nothing about the tax system now, growth rates could be permanently reduced, and everyone would be worse off. Shifting to a growth-oriented tax system gives Singapore a much better chance of securing better jobs and higher living standards in the years to come.

Singapore has a progressive tax system. The entire personal income tax burden is borne by the top 33% of working adults. The remaining two-thirds do not pay any income tax.

Compared with other countries, Singapore has a far more progressive tax system. The total tax burden of a high-income household is about 15 times that of a low-income household. In contrast, the tax burden of high-income households is only around two times that of the lower-income in many European and US cities. This is mainly because of high consumption taxes, for example, 22% VAT in Finland, 21% in Ireland and 17.5% in the UK. In addition, most working adults in these countries pay income tax, unlike Singapore where only the top 33% pay income tax. The corresponding ratio of tax burden between high and low-income households in Kuala Lumpur and Taipei is higher than the US and Europe, but still significantly lower compared to Singapore (see *Table 2* [4]).

Helsinki	Dublin	London	Los Angeles	New York	Sydney	Hong Kong	Kuala Lumpur	Taipei	S'pore
1.6	1.8	2.8	2.4	2.2	2.2	NA	7.5	3.8	15

Table 2: Ratio of Tax Burden of High Income to Low-Income Households [4]

After taking into account government transfers, such as CPF top-ups and Singapore Shares, the lower and middle-income households effectively pay “negative” tax. For example, households in the lowest 30% income bracket faced an average net tax burden of -33% of household income in the year 2000. Those in the next 30% income bracket faced an average net tax burden of around -8% of household income.

The tax system was restructured to compare favourably with other international tax regimes so as to send a strong signal of Singapore’s intention to be an international hub for business and talent. With information from Ministry of Finance [4] and Inland Revenue authority of Singapore [5], the key tax changes are:

1. The corporate tax rate will be reduced from 24.5% to 20% within three years to strengthen business competitiveness and encourage enterprise development. For YA 2003, the corporate rate is 22% (Table 3).
2. For personal income tax, the top marginal tax rate will be reduced from 26% to 20% within three years, with corresponding cuts across all income bands. This is to encourage hard work and enterprise. For YA 2003, the top marginal rate for individual tax is 22% (Table 3).

3. To make up for the loss in direct tax, the Goods and Services (GST) tax will be raised from 3% to 5% on Jan 2003. To help cushion the impact of GST increase especially for lower income group, an offset package is being implemented.

Year of Assessment	Individual Top Marginal Tax Rate	Corporate Tax Rate
1997- 2000	NA	26%
1997-2001	28%	NA
2001	NA	25.5%
2002	26%	24.5%
2003	22%	22%

Table 3: Data from Inland Revenue Authority of Singapore

Hopefully the reduction of tax rates for business and personal income tax will result in expansionary aggregate demand and supply for goods and services in the Singapore economy going through recessionary times. Please refer to Appendix 1 (page 20) for the summary of the key tax system in 2002.

PROFILE OF GOVERNMENT EXPENDITURES

Ministry of Finance's strategic banner is "Superior Stewardship and Prudent Investment of Public Funds". Government expenditure in Singapore, currently at 18% of GDP, is one of the lowest in the world [4]. Over time, government spending is likely to increase as demands for more and better public services grow with rising affluence and expectations. Expenditures on healthcare and other social needs are also likely to rise because of the ageing population. By 2030, 24% of the population will be aged 60 and above, compared to 11% today.

The fiscal policy is to focus expenditure in areas with yield lasting returns and which reflect the priorities of the Singapore government in these key areas (Figure 1) as outlined in the 2002 Budget Statement [1]:

1. Provide the infrastructure to support economic growth
2. Provide good educational opportunities and affordable health care
3. Public housing and programs to protect the environment to make Singapore a world class home
4. National defence and security

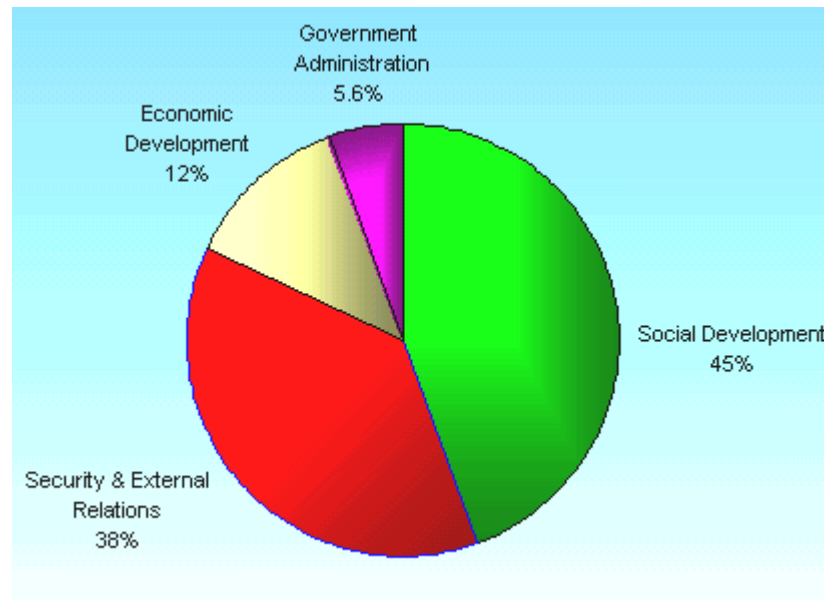


Figure 1: Singapore's Expenditures

EXPENDITURE PRIORITIES

SOCIAL DEVELOPMENT

As in previous years, the largest share of the Government's FY 2002 expenditure budget goes to Social Development, which accounts for 45% of total expenditure. Education, Health and Community Development & Sports will get substantial increases in their budget allocation. The increases support the Government's emphasis on human and social capital. These form the foundations for a strong, cohesive and resilient society. Ministry of Education will spend \$2.6 billion in operating subsidies to educate children at the primary, secondary, pre-university and junior college levels. Another \$1.7 billion will be spent on university and polytechnic education, as well as on the Institutes of Technical Education. MOH will spend \$1 billion on subsidised healthcare services at the 17 polyclinics, 64 voluntary welfare organisations and 13 public hospitals and healthcare institutions. These expenditures will be targeted more precisely at lower-income households through means-testing. Means-testing will also be applied to social assistance.

SECURITY & EXTERNAL RELATIONS

The next largest sector is Security and external relations. The September 11 attacks have reminded the Singapore government not to take security for granted. Despite the defeat of the Taleban and Al Qaeda in Afghanistan, global terrorism is still an active force, with numerous cells and networks endemic in many countries, including in South East Asia region. The regional situation is complex and unpredictable. To preserve and enhance Singapore's defence capacity, the Government will devote 38% of the total expenditure budget for FY 2002 to Security & External Relations.

ECONOMIC DEVELOPMENT

Economic development is the third largest sector, at 12% of the total expenditure budget which will focus on investment in world-class infrastructure to strengthen Singapore's competitive position as a compelling hub for global and regional business. Ministry of Trade will spend \$1 billion in 2002 on road upgrading and rail projects, including the MRT Circle Line and the Sengkang and Punggol LRT.

The Government will continue to deregulate sectors of the economy which have not been fully liberalised, for example, the electricity industry. This will sharpen the innovative capacity of Singapore companies, and make them more efficient and competitive. The Government will help Singapore-based enterprises, including SMEs, to upgrade their capabilities and venture abroad. New investments and economic activities will be encouraged in order to develop new growth engines, and add depth and resilience to the economy. At the same time, the Government will outsource services to the private and people sectors wherever it is cost effective to do so.

Government expenditure in the Economic Development sector will continue to emphasise worker training and upgrading and many such programmes have been implemented over the years. The second off-budget package last year enhanced employment assistance and training programmes, including the Skills Development Fund and the People-for-Jobs Traineeship Programme. Continuous skills-upgrading is the best form of job security.

GOVERNMENT ADMINISTRATION

Government administration remains the smallest sector, comprising 5.6% of the total expenditure budget. It will continue to keep this the smallest sector in line with its policy to keep the central administration lean and trim, so that the operational ministries can have the bulk of the resources to deliver public services. The Government will improve service delivery through the E-government initiative. By the end of 2002, all government services that can be delivered through the Internet will be available online. See Appendix 2 on page 24 for the Singapore Budget in 2001 and the Expenditure Highlights.

Because of Singapore's healthy overall fiscal positions, the MAS have been able to concentrate on its primary goal of ensuring price stability and preserving confidence in the domestic currency.

CHALLENGES AHEAD

The Economist Oct 25, 2001 article [6] highlighted that Singapore's fiscal boost is worth a massive 7% of GDP and whether such fiscal policy will help support a slumping economy. The Federal Reserve estimates that in the US, a \$1 increase in Government spending boost GDP three times as much as a \$1 income tax cut supporting the evidence that monetary policy seems to have a greater effect on the economy than the fiscal policy. The other question is whether Singapore government should be more aggressive in allowing future budget deficits to help stimulate the aggregate demand in a gloomy economy.

To shift successfully into a knowledge based economy, Singapore must strengthen its IT capabilities [3]. The government is actively promoting entrepreneurship, especially in the area of technology, and has set up a fund to co-invest with the private sector in high-tech start-ups. Given that human and intellectual capital is key competitive factors in a knowledge-based economy, the educational system has been changed so as to encourage creativity and innovation from young. The process should continue at the workplace in a life-long learning environment. As such, various manpower initiatives have been launched to encourage the continual retraining of the workforce. Another important component of labour market policies is the efforts that have been invested in attracting foreign talent to Singapore. Taken as a whole, these measures will help to position Singapore to contribute to, and partake of, the benefits of the new global economy.

SINGAPORE - UNDER THE SHADE OF DEFLATION?

CONCEPTS

For the following considerations, we define:

- **Inflation** as “a persistent, substantial rise in the general level of prices related to an increase in the volume of money and resulting in the loss of value of currency.”
- **Deflation** as “a fall in the general price level or a contraction of credit and available money.”
- **Disinflation** as “a period or process of slowing the rate of inflation.”
- **Stagflation** as “the combination of *inflation* and *stagnation*”. It puts together two categories of analysis that are best kept separate, but are often confused. The first category of analysis is *monetary* - the unit of account (the currency, i.e., the dollar) is depreciating versus goods, services and assets. The second category is *macroeconomic* -- the nation's economy is contracting, and how fast.

The only truth is that, over the long term, the goal of sustainable growth is best achieved with neither inflation nor deflation - both tend to induce costs and inefficiencies that retard growth [13].

DISINFLATION AND DEFLATION

People are often confused about disinflation and deflation. In fact, “The distinction between disinflation and deflation is roughly the same as cooling down by going for a leisurely swim versus drowning. They both involve water, but the former represents something of a triumph and the latter a serious failure.” Disinflation is normally good -- a steep fall in inflation to a low, relaxing level. On the contrary, deflation conjures images of depression: unemployment, bankruptcy and negative growth.

THE SIGNS OF DEFLATION

Today, although many economists insist that deflation is unlikely, there is more evidence to suggest it is possible than at any time in the last 60 years. First, look at prices. The benchmark crude oil has fallen by 40% and continues down even when North America is experiencing its coldest winter in years and Tokyo is snowed under. Additionally, commodities ranging from rice to cotton and from copper to rubber are cheaper in dollar terms than they were a year ago -- in some cases cheaper than five years ago -- and are continuing to fall.

Prices only reflect the surface of the deflation story. Digging deeper, you would likely to find fundamentally weak demand and excess supply. Asia's currency crisis promotes both. The strangled property markets and high unemployment rate tend to make consumers feel poor and contribute to a deflationary spiral.

Regarding the supply, industrial companies were likely to build production facilities even when they were less than certain there would be enough demand to justify them. Now, they are faced with the imperative to produce and export products as much as possible. The surplus in supply leads to falling prices.

A VIEW ON THE WORLD

Presently, as shown in Figure 2, most of the world's economies are in a relatively low and stable inflation environment compared to that of the 1970s and 1980s [12].

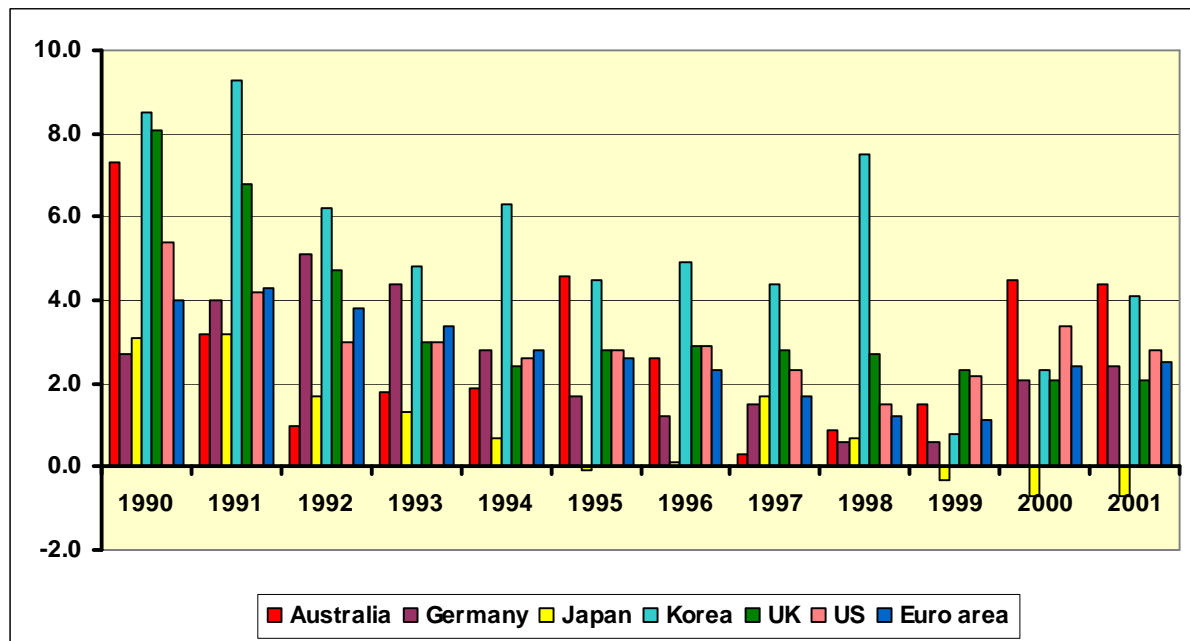


Figure 2: Inflation Rates in some Selected Countries

In US, the rate of increase in consumer prices (measured by changes in the CPI) dropped from 3.4% in 2000 to 2.8% in 2001. In UK and Germany, the rate of increase in consumer prices stabilized at around 2% in the last two years.

The falling inflation was partly due to improved productivity, lower commodity prices, and subdued energy and import prices. Besides the technology factor, the present slowdown in the US economy could also further reduce price pressures as reflected by the softened trend of the US Consumer Price Index and Producer Price Index in the first half of this year.

Besides, the effect of terrorism may need attention. During World Economic Outlook Press Conference (Singapore) October 15, 2002, Kenneth Rogoff, Economic Counsellor and Director of Research of IMF stated, "...the long-term outlook for the global economy is still dominated by very positive trends in technology and productivity. But the impact of terror eats into this at least a little, if nothing else slowing the gains from increased globalization. The adverse effects on trade in goods and on the migration people are arguably akin to having a 'terror tax' on the global economy." [14]

Generally, the industrialized economies (outside Asia) are expected to remain in a low price environment.

In East Asia, the problem is that deflation is no mere academic concept, but an economic threat as potentially dangerous as the currency crisis of 1997 or the export collapse of 2001.

South Korea may be one of the first industrialized economies that shake off the global downturn, but it may be one of the first industrialized nations to confront the upward price pressure. While in some other markets around the region, prices are still falling. In Japan, its annual inflation rate has been negative since 1999. Hong Kong has suffered nearly four years of continuous price declines. In recent months both Taiwan and Singapore have seen consumer price indices dip into negative territory, while China, the region's most dynamic economy, has been struggling to escape the deflationary quicksand since 1998.

The danger dragging down the price level now is that the \$10 trillion United States economy, which makes up nearly a third of the world's gross domestic product, tips over into decreasing prices too, with a significant impact on East Asian growth.

Studying the demand in Asia, it could be found that the external demand for Asia's exports has been slowed down and Hi-tech is under the down cycle.

Besides, mainly due to Asian Crisis, the domestic demand is weak, dragged down by high unemployment. The falling asset prices and depressed credit growth also indicate the sluggish demand in the market.

Considering the supply side, we can identify:

- Over-investment and overcapacity in the IT and telecom sectors.
- New source of cheap labour—China as the world's low-cost producer
- Falling prices due to rapid technological changes, trade liberalization, deregulation and fierce competition

All these contribute to the falling prices in East Asia.

A VIEW ON SINGAPORE

As a regional hub for Asian trade, Singapore has a highly industrialized economy; agriculture and mining are of minimal importance. Manufacturing is the most important sector, followed by wholesale and retail trade, financial services and business services. (Manufacturing accounted for 23.6% of GDP in 2001, compared with 16.3% for wholesale and retail trade.) The most important manufacturing sector is electronics. Singapore is the world's leading producer of disk drives, and there have been significant investments in wafer-fabrication plants. However, this dependence on electronics is a weakness as well as a strength—when world demand for electronics declines (as happened in 2001), Singapore is hit hard. Oil refining and chemicals are important industries, and a significant pharmaceuticals sector has emerged in recent years.

The country is exceptionally dependent on foreign trade. The total value of trade in goods (exports plus imports) was equivalent to 278% of GDP in 2001, compared with 17% in Japan, for example. This total, however, includes a large volume of re-export trade, encouraged by Singapore's location and excellent port facilities. Re-exports accounted for 46% of total exports in 2001.

The characteristics of Singapore can be summarized as following:

1. A small, open economy dependent on external trade.
2. An independent monetary authority or currency board that avoided an over issue of currency.
3. No government deficits to fund social and defence programs that could have produced inflation. [11]

In the past, Singapore has been minimizing control over monetary policy and the influences of politics to control inflation. However now, it seems that Singapore needs to turn its attention to Inflation's vicious twin—deflationary trend.

CONSUMER PRICE INFLATION

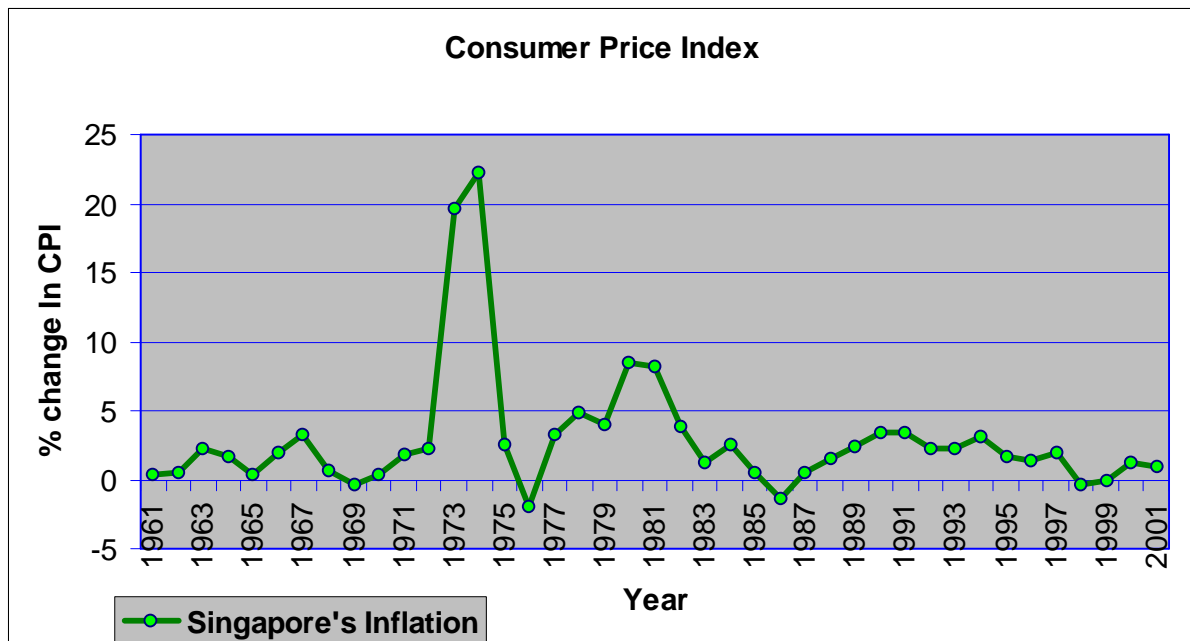


Figure 3: CPI in Singapore [15]

After the economic crisis in 1970's and 1980's when Singapore was greatly affected by the imported inflation, Inflation has averaged two%, annually, over the last 10 years, except for 1998 when the growth is negative 0.3% due to the economic recession. Since the economic recovery, price levels have been rising with the CPI increased by 1.3% in 2000 [16].

The consumer price index (CPI) rose by 1.0% in 2001. Price increases were attributed solely to domestic factors. Domestic sources were responsible for 1.2% increase in CPI, while external factors reduced CPI by 0.2%. The decline in the external trade was largely due to the continued downturn in global electronics demand, as well as the slowdown in the major economies such as the US, EU and Japan. Sluggish demand from the regional economies also took its toll on Singapore's external trade.

While in 2002, apart from a blip up in June (that may be mainly due to a expansion on Singapore's external trade), the index has been easing since the start of 2002 on a year-on-year basis. The consumer price index (CPI) fell 0.4% in September from the same month in 2001 and slipped 0.1% from August, the Department of Statistics said in a statement.

While CPI may not authentically reflect the overall price level in Singapore, as it is composed of only a fixed basket of products (see Figure 4) with corresponding weight that may not be representative of the general price level.

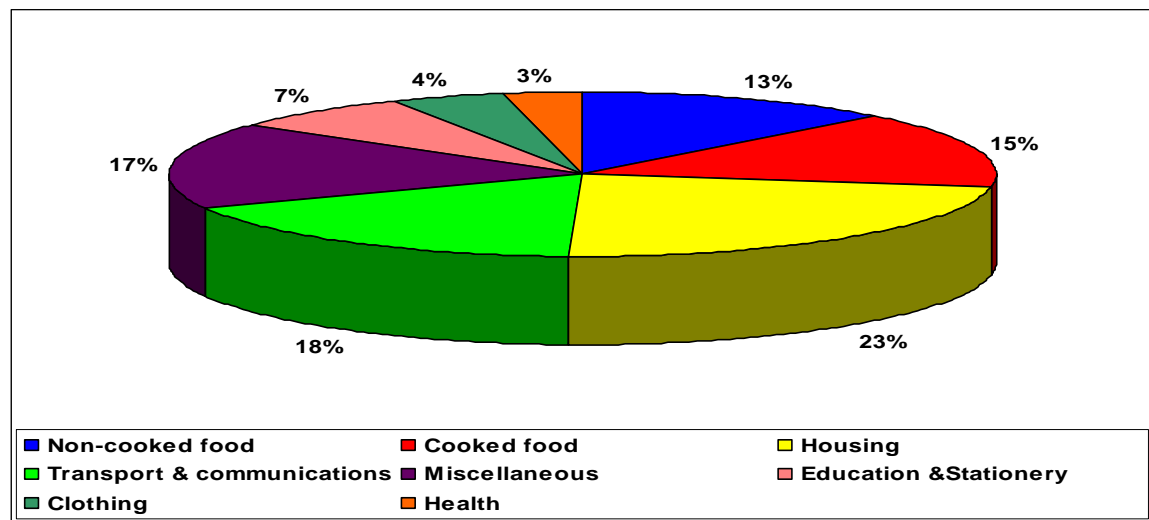


Figure 4: Composition of CPI in Singapore

So PPI (producer price Index) is introduced here to complement CPI. As shown in Figure 5, PPI has been negative since 2001, accompanying the decrease of CPI.

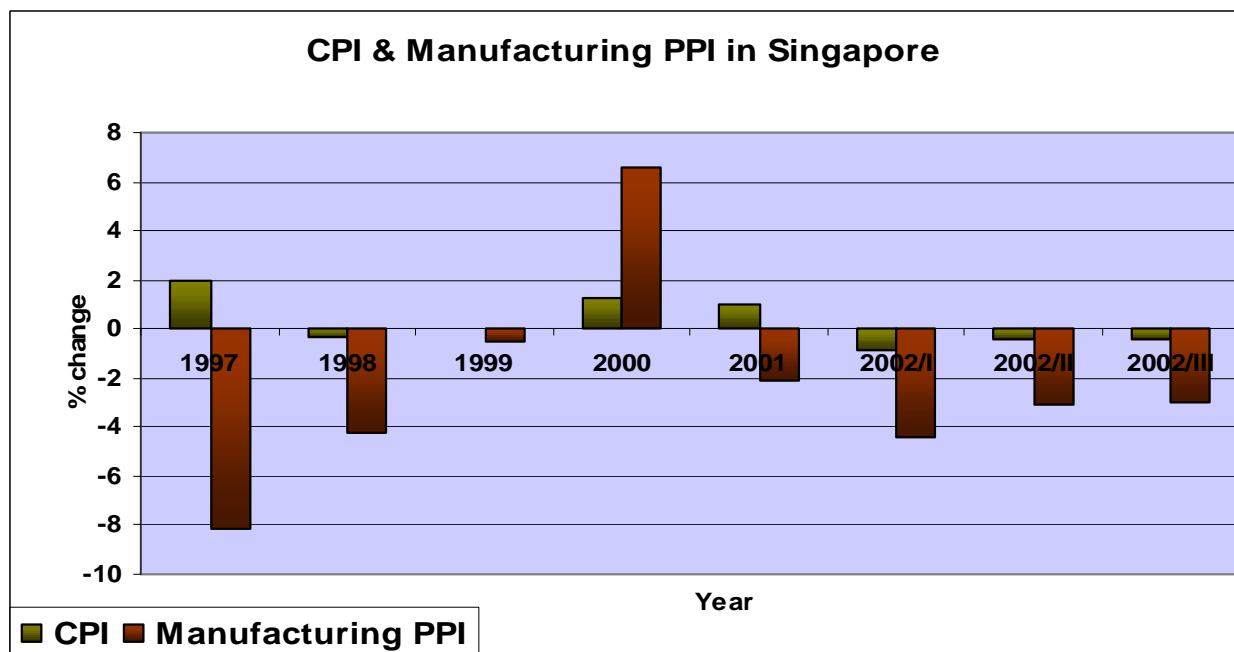


Figure 5: CPI and Manufacturing PPI

In sum, the situation of Singapore in 2001 could be better stated as Disinflation. However, it must be realized that a region wide retrenchment in spending, soft asset values and an overcapacity to produce cheap goods seems a prescription for depressed -- even deflationary -- prices. In fact, CPI in the first three quarters of 2002 has been fallen into the negative territory.

Furthermore, the CPI is expected to be in the range of minus 0.3% to 0.2% in the second half of this year, considering the weaker-than-expected recovery in the US economy and uncertain global electronics demand. Besides, domestic consumer demand is expected to remain sluggish in the second half-year as the pick up in external demand is not likely to be strong enough to stimulate the economy and boost confidence in the country, contributing to the falling prices. Moreover, unemployment situation in Singapore also affects the price levels. As shown in Figure 6, the relationship between the unemployment rate and the inflation rate in Singapore seems to comply with the short-run Philip Curves—the low unemployment rate, the high inflation rate, vice versa. The high unemployment in Singapore, besides slowing to 4.1% in the second quarter of the year, is likely to dampen consumer confidence. The Straits Times Consumer Confidence Index, compiled every three months, has slipped by a further eight points - from 187 in June 2002 to 179 in September. The depressed consumer confidence reduces the aggregate demand, which leads to the falling prices.

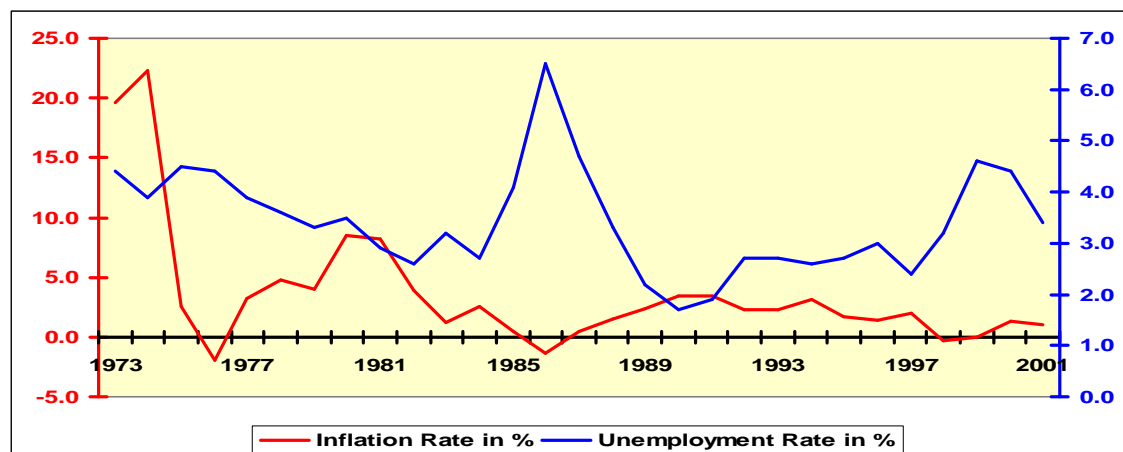


Figure 6: Unemployment rate and Inflation rate in Singapore

It must be realized that a fall in the general level of prices can have far worse consequences, accompanied by a similar decline in output, widespread bankruptcies and a massive increase in unemployment.

First, if consumers expect prices to fall, they postpone spending; weaker demand then forces producers to cut prices further, threatening a nasty downward spiral in output and demand. The firms are left with excess capacity and unwilling to invest, which will affect the future development negatively. Persistent deflation can prevent the scarce resources from being allocated optimally.

To add to the misery, lower prices swell the real value of debt. This forces firms and households to spend less, but, combined with falling asset prices, it also creates a mountain of bad debt and a risk of bank failures.

And last but not least, falling prices can mean that monetary policy becomes powerless to stimulate demand: nominal interest rates cannot be negative, so falling prices lead to painfully high real interest rates [26].

So, without the weapon of interest rate, Singapore needs to consider exert its monetary policy to fight against the possible deflation. The below are the possible measures for Singaporean government to activate economic recovery:

1. Let the currency depreciate to a certain level in order to encourage exports when a country has low risk of inflation. Depreciation is a good instrument to stimulate exports without worrying

about inflation. Some countries in Asia have already used this measure. For example, South Korea's government has intervened in the foreign exchange market to make won depreciate in order to help the export sector. But it is still an open question to Singapore, as it is vulnerable to inflation and uses a managed floating exchange rate policy.

2. Do nothing and let the automatic stabilizer operate itself. However, this may not be a better choice. Although there is no perfect policy to fight against recession, the fiscal policy and the monetary policy can help the economy recover at a lower cost.
3. To conduct expansionary fiscal policy to increase domestic aggregate demand. The government can increase public spending (in infrastructure and technology) and/or reduce taxes. The government could also consider spend more in the social welfare to encourage consumption. It should also alleviate unemployment situation, the main factor that has made aggregate demand fall. While, it should concern about the crowd-out effect and the household's expectation about the tax cut when taking this policy. Producers will not expand production unless there is a sign of an increase in purchasing power.
4. To conduct expansionary monetary policy to inject money into the economy by decreasing reserve ratio in order to change people's expectation from deflation to inflation. This results in declining real interest rates, which in turn, reduce saving and increase consumption; while the real interest burden on business sector is lessened. As MAS has been very conserve in changing the reserve ratio, this suggestion may deserve further consideration.
5. The economic and financial cooperation and policy coordination among Asian countries to curb economic downturns and bring them into recovery must be more seriously pragmatic—regional grouping “ASEAN”.

INTERNATIONAL TRADE

According to [25], Singapore's non-oil domestic exports in 2001 reached S\$85 billion. Figure 7 gives an overview about Singapore's major trade partners for non-oil exports.

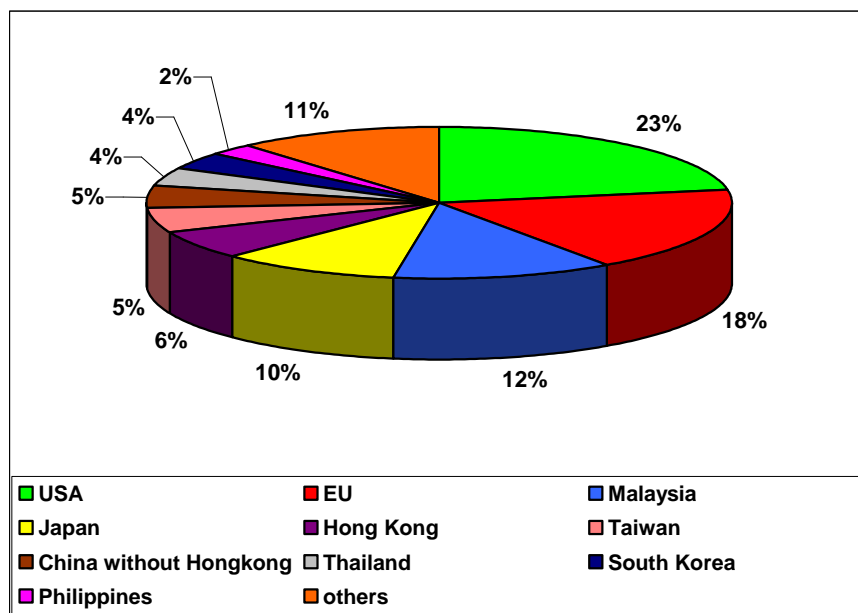


Figure 7: Major trading partner for Singapore's non-oil exports

The trade partners for domestic non-oil exports are almost divided equally between the Western economies USA and EU and the major economies in Southeast Asia, with neighbouring Malaysia holding a strong stake of 14%.

THEORY OF THE IMPOSSIBLE TRINITY

The theory of the Impossible Trinity (see Figure 8) claims that it is not possible to maintain exchange rate stability, a free flow of capital and autonomy of the monetary policy at the same time. Controlling two of the given parameters, the third one cannot be controlled [21].

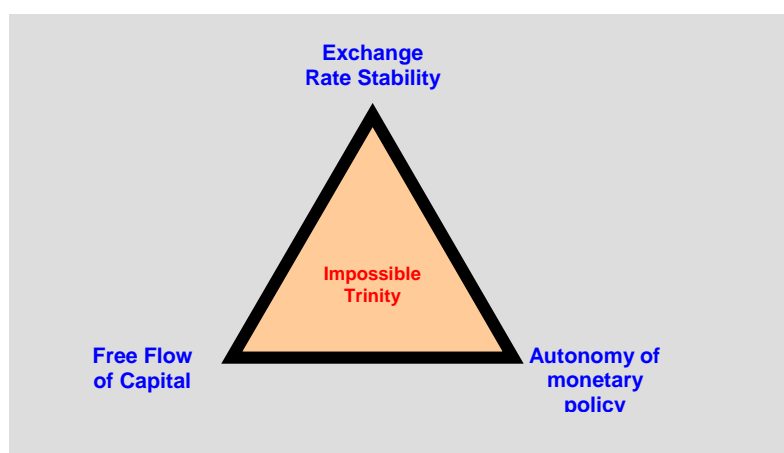


Figure 8: The Impossible Trinity

THE MONETARY AUTHORITY OF SINGAPORE

Monetary Policy in Singapore is the task of the Monetary Authority of Singapore (MAS) which is the Central Bank of Singapore. According to [18], the objectives of MAS are:

1. To conduct monetary policy and to manage the official foreign reserves and the issuance of government securities.
2. To supervise the banking, insurance, securities and futures industries, and develop strategies in partnership with the private sector to promote Singapore as an international financial centre.
3. To build a cohesive and integrated organisation of excellence.

Like many other central banks worldwide, the MAS has adopted *price stability* as its primary goal because price stability is seen as the best foundation for sustained economic growth [2; 8].

THE SINGAPORE DOLLAR (S\$)

The Singapore dollar was created in 1967 and was initially linked to the Pound Sterling (£), but in June 1972 it was linked to the U.S. dollar. At this time, the Singapore dollar was still interchangeable at a ratio of 1:1 with the Malaysian dollar. This system was abandoned in May 1973, and since June 1973, the exchange rate of the Singapore dollar is determined against an undisclosed basket of currencies representing Singapore's major trading partners. But only in June 1978, all foreign exchange controls were abandoned and the Singapore dollar has been able to be traded freely since then. In 1985, Singapore adopted a policy whereby the Singapore dollar is permitted to float within a target band that is monitored by the MAS [23].

CONTROLLING THE EXCHANGE RATE

In small economies which rely very much on import and export like Singapore, it makes most sense that the central bank anchors its monetary policy to the exchange rate rather than to the interest rate. With increasing openness of an economy, the exchange rate's effect on prices and activity increases in relation to that of interest rates like documented in [24].

Doing so, a central bank can peg the currency rigidly to another currency like it is done in Hong Kong, or the central bank decides to manage the own currency flexibly against a basket of currencies. The latter approach has been adopted by the MAS in 1981 when it has chosen to focus its monetary policy on the exchange rate rather than the money supply or interest rate [18]. There are essentially three reasons for this choice:

1. Singapore's open economy is of small size compared to other economical heavyweights like the US or Japan. Therefore, Singapore cannot influence the world prices of traded products but the country has to accept the world prices. Singapore is a so-called *price taker*.
2. Singapore relies heavily on the international trade of products. The country imports good for consumption and exports products like electronics and computers. Changes in the exchange rate have therefore a tremendous impact on this international trade and can particularly influence the export-oriented industry and lead to huge changes in demand.
3. Singapore is open to international capital flows. If the interest rate was chosen as the key instrument of the MAS, interest rate changes would result in large capital movements that would then offset the planned changes in the interest rates. Since interest rates are therefore

not a suitable measure to control the monetary policy in Singapore, the exchange rate is more appropriate choice.

Hong Kong and Malaysia are two more countries that focus on the exchange rate due to their large dependency on international trade. However, Malaysia does not have a free flow of capital. China also focuses on the exchange rate, but China is not considered to be an open economy at the moment [24].

When the MAS intervenes in the market, it conducts operations that influence the S\$/US\$ exchange rate which will subsequently influence the exchange rate of the Singapore dollar to the other currencies in the currency basket [22]. The MAS therefore holds large reserves in foreign currency so that it can act with sufficient impact. Singapore's total international reserve holdings were US\$80 billion in 2001 [8; 9]. However, these transactions will also influence the liquidity of the banking system, and therefore, exchange rate operations usually are accompanied by money market operations that ensure a high liquidity. According to [22], the MAS hereby uses the following instruments:

1. **Foreign Exchange Swaps and Reverse Swaps.** These are exchanges of currency for another over a period of time.
2. **Direct Lending and Borrowing from Banks.** The MAS can borrow and lend from other banks in the interbank market at interbank rates.
3. **Repurchase Operations (Repos) and Reverse Repurchase Operations.** If the MAS executes a repo, it borrows securities and lends Singapore dollars to the market and reverses this transaction later. A reverse repo lends securities and borrows Singapore dollars to the market and reverses this transaction later.

The MAS manages the Singapore dollar against a basket of currencies rather than against a single currency like the U.S. dollar. This basket is composed of the currencies of those countries which are the main sources of imported CPI inflation and competition in export markets [18]. Doing so, changes in the exchange rate can control the imported inflation in Singapore as well as the competitiveness of the Singaporean export industry. The exact composition of the currency basket, however, is not disclosed. The MAS maintains the exchange rate of the Singapore dollar within an undisclosed target band which is not static but which is adapted from time to time by the MAS. If the Singapore dollar drops outside this target band, the MAS usually intervenes and sells or buys Singapore dollars in order to bring the exchange rate back within the target band [18]. [20] shows how the Singapore dollar has maintained its strength against major other currencies. An important term in that aspect is the so-called *trade-weighted Singapore dollar nominal exchange rate (SSNEER)* which reflects the appreciation or depreciation of the Singapore dollar versus the weighted currency basket [20].

Changes of the exchange rate affect the Singaporean market in two ways [18]. Let's assume, for example, that the MAS decides to depreciate the Singapore dollar versus the basket of currencies. This causes inflation to be introduced via two channels:

1. **Impact on Import Prices.** Imported goods become more expensive which leads to a higher inflation.
2. **Impact on External Demand.** The depreciated Singapore dollar leads to lower price of export goods and thus drives up the demand for Singaporean products and services. The Singaporean economy produces more and increases staff. The result is an overheated business environment in Singapore which raises wages and rentals. This results in inflation, too.

As it was mentioned earlier, the MAS does not try to influence the interest rate in Singapore, and the Singaporean interest rate is practically following the U.S. interest rate. A change in the Singaporean interest rate has an impact on the mortgage market and on private households. Large parts of Singapore's industry are multinational enterprises (MNCs), however, and they do not raise their funds

in Singapore. Usually, MNCs get their funds from their headquarter which are located outside of Singapore. [20] shows a table how the Singaporean interest rate follows closely the U.S. interest rate.

FURTHER LITERATURE

This report cannot explain every detail of Singapore's macroeconomy, and the interested reader is referred to [21] for an extensive report on the Singaporean macroeconomic data by the MAS.

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APPENDICES

APPENDIX 1: SUMMARY OF KEY RECOMMENDATIONS IN TAX SYSTEM

Source: Ministry of Finance: http://www.mof.gov.sg/erc/SubCommittee_Report.html

S/No	Recommendations	Objectives
Corporate Income Tax		
1.	Reduce corporate income tax rate significantly for income earned in 2002. As a medium-term target, the tax rate should be cut from the current 24.5% to 20% within 3 years.	Strengthen competitiveness. Encourage enterprise development.
2.	Implement group relief to allow corporate groups to offset the losses of one company against the taxable profits of another company within the same group. The group relief regime can be implemented with the following features: 75% shareholding threshold (i.e. two companies are members of a group if one is at least 75% owned by the other or if both are at least 75% owned by a common parent). The government could consider lowering this threshold after the full impact of group relief has been assessed. Transfer of 100% of current year unutilised capital allowances and losses. Government to consider implementing consortium relief and extending group relief for overseas branches and subsidiaries after it has put in place the basic features of the group relief regime.	Give companies the flexibility to start new activities through subsidiaries. Encourage innovative activities.
3.	Shift from a full-imputation corporate tax system to a simpler and more efficient one-tier system. This would enhance the effectiveness of the group relief system, encourage the use of Singapore as an international hub for holding companies and help reduce compliance costs.	Enhance effectiveness of group relief. Promote Singapore as an international hub for holding companies. Reduce compliance costs
4.	Liberalise the system of taxation of foreign income: Extend the availability of foreign tax credits beyond the first-tier investee company to lower-level subsidiaries. Expand the prescribed list of services that qualify for unilateral tax credits (UTC), or remove it altogether. Lower the minimum threshold (currently at 25%) to qualify for UTC. Set more flexible qualifying criteria for tax exemption of foreign source income under Section 13(8) of the Income Tax Act	Encourage companies to venture overseas.
5.	Introduce a one-year loss carry-back feature in the corporate tax system to relieve the cash-flow burdens of businesses suffering losses in the course of the business cycle.	Relieve cash-flow problems of businesses suffering temporary losses over the business cycle
6.	Allow more generous tax treatment of intellectual property: Give deduction for expenses incurred on R&D outsourced to any organisation, local or foreign. Apply the writing down allowance (WDA) automatically for acquisition of intellectual property, as is the case for physical assets	Encourage knowledge-based activities.
7.	Design tax incentives with more flexible and varied criteria, besides fixed asset investment and total business spending, so as to capture the full contributions of the company in the knowledge-based economy.	Ensure that incentives remain relevant in the knowledge-based economy

8.	Review and rationalise the withholding tax provisions. This should be done by establishing a consultative body, including representatives from the private sector, to address the needs of individual sectors while ensuring consistency in tax treatment.	Reduce business costs
9.	Give tax deductions for mergers & acquisitions, especially to encourage consolidation in heavily fragmented industries.	Promote enterprise development
10.	Give tax deductions for selected expenses incurred prior to starting new businesses and in the listing of companies, to help promote enterprise development.	Promote enterprise development
11.	Broaden the Technopreneur Investment Incentive (TII) to an Entrepreneur Investment Incentive (EII) to be made available to a wider group of entrepreneurs and not just those in the high-tech sector.	Promote broader base of entrepreneurial activities.
Personal Income Tax		
12.	Reduce the personal income tax rates significantly for income earned in 2002. As a medium-term target, the top marginal tax rate should be reduced from the current 26% to 20% within 3 years, with corresponding cuts across all income bands.	Lighten the tax burden. Encourage hard work and enterprise. Attract and retain global talent
13.	Exempt interest income earned on all bank deposits, debt securities and other interest-bearing instruments.	Reduce distortions in the way savings are taxed. Increase liquidity in domestic financial markets.
14.	Exempt foreign source personal income remitted back to Singapore from tax.	Increase liquidity in domestic financial markets.
15.	Introduce tax exemption for employment income attributable to time spent outside Singapore. This will apply to tax residents (both citizens and non-citizens), who have not lived in Singapore for the preceding 3 years or more. To qualify, such individuals must have significant international responsibilities requiring them to spend time abroad, for example at least 90 days annually. Qualifying individuals will receive the tax exemption for 5 years.	Promote Singapore as business and talent hub.
16.	Exempt employers' contributions on behalf of expatriates to overseas private pension funds from tax.	Attract and retain global talent.
17.	<p>Encourage the use of stock options to align the interests of management and employees with the performance of the company and promote an entrepreneurial environment:</p> <ol style="list-style-type: none"> 1. Defer the tax payment of stock option gains to the point of sale of shares or after 7 years from the exercise date, whichever is earlier, with no interest charge on the deferred tax liability. <p>Where there is a moratorium on the sale of converted shares, compute the tax liability based on the difference between the market price at the end of the moratorium and the exercise price. Allow for more flexible criteria to qualify for stock option schemes. For example, the 50% participation requirement to qualify for the Company Stock Option (CSOP) scheme should be relaxed to allow more companies to qualify for the scheme.</p> <p>Not tax the gains derived from stock options granted overseas when the individual exercises them in Singapore. This is achieved by treating the gains from stock options as employment gains and</p>	Strengthen entrepreneurial culture. Compete more effectively for talent.

	<p>taxing the gains only to the extent that they are attributable to Singapore employment.</p> <p>Adopt a 'deemed exercise' rule for expatriates who leave the country with unexercised stock options. If the employer is willing to keep track of employee's movements, the tax liability can be raised at the point of actual exercise, with payment deferred to point of sale.</p> <p>Adopt similar tax treatment for employee share award schemes as that recommended for share options, where relevant.</p>	
18.	<p>Revise the structure of estate duties:</p> <p>Raise the exemption limit for non-residential assets from \$600,000 to \$2 million.</p> <p>Exempt the 'movable' assets of non-domiciles from estate duty. This would encourage more expatriates to hold S\$-denominated assets and boost Singapore's position as a private banking centre.</p>	<p>Reduce imbalance between tax treatment of residential and non-residential assets.</p> <p>Boost Singapore's attractiveness as a financial centre.</p>
Goods & Services Tax (GST)		
19.	Raise the GST from 3% to 5% in 2003. Retain across-the-board coverage of GST with as few exemptions as possible.	<p>Make up for revenue loss arising from direct tax cuts.</p> <p>More resilient tax base for the long term.</p>
20.	Provide an offset package to help Singaporeans adjust to the GST increase. The package should ensure that most households, especially lower-income households, are no worse off during the transition.	Help Singaporeans cope with impact of GST increase.
21.	Set up a committee to combat profiteering and undue price increases.	Ensure no undue price increases due to GST rate increase.
Car Tax & Charges		
22.	Reduce taxes on ownership of cars to achieve a better balance between ownership and usage costs. This should be done by gradually reducing the Additional Registration Fee, Excise Duty and Road Tax. More COEs will have to be released at the same time to prevent a consequent increase in car ownership costs. Measures to keep congestion at an acceptable level should focus on increased usage charges, including ERP and parking charges.	Allow more people to own cars at lower upfront costs while keeping congestion at an acceptable level.
Manufacturing Sector Incentives		
23.	<p>Enhance the Development and Expansion Incentive (DEI):</p> <p>Reduce the minimum rate from 10% to 5%.</p> <p>Rationalise some of the existing incentives in the Economic Expansion Incentives Act (EEIA) and put them under the umbrella of the DEI.</p>	<p>Enhance attractiveness of manufacturing sector incentives.</p> <p>Reduce tax administration and compliance costs.</p>
Services Sector Incentives		
24.	<p>Financial Services</p> <p>Rationalise and consolidate existing financial sector incentives. Enhance the Finance and Treasury Centre (FTC) incentive by expanding its scope to cover treasury activities conducted for Singapore operations.</p>	<p>Enhance attractiveness of services sector incentives.</p> <p>Reduce tax administration and compliance costs.</p>
25.	<p>Info-Communications & Technology</p> <p>Enhance the Approved Cyber Trader Scheme by liberalising the eligibility criteria and reducing the concessionary rate (currently at 10%).</p>	

26.	<p>International Trading</p> <p>Enhance the Global Trader Programme (GTP) by reducing the tax rate to less than 10% for firms with significant business spending in Singapore. This can be done through a tiered concessionary tax rate regime.</p> <p>Offer tax incentives for mid-tier trading companies that do not qualify for GTP.</p>	
27.	<p>Transport & Logistics</p> <p>Enhance the Approved International Shipping (AIS) Enterprise scheme by liberalising the qualifying criteria and extending the scope of activities covered under the scheme.</p> <p>Give tax-exemption for the income derived from Protection & Indemnity Clubs' activities.</p>	Enhance attractiveness of services sector incentives.
28.	<p>Other Services (E.g. healthcare, legal services and tourism)</p> <p>Specific incentives to promote these sectors are set out in Chapter 7.</p>	
Using Capital Markets to Finance Bankable Projects		
29.	<p>Use the capital markets instead of tax revenues to finance bankable or financially viable development projects. This would encourage greater commercial dynamism, innovation and efficiencies in the public sector.</p>	<p>Smoothen out government spending.</p> <p>Bring about more innovative and cost-efficient ways of providing public services.</p>

APPENDIX 2: SINGAPORE BUDGET Y2001

Source: Ministry of Finance http://www.mof.gov.sg/budget/budget_2001

GOVERNMENT EXPENDITURE

The Budget

For The Financial Year

1st April, 2001 To 31st March, 2002

OPERATING REVENUE	\$ 34,271,265,000
Tax Revenue	28,332,169,000
Fees and Charges	4,999,716,000
Net Investment Income Contribution	856,000,000
Others	83,380,000

Less:

OPERATING EXPENDITURE	18,656,039,020
Running Costs	16,632,448,460
Transfers	2,023,590,560

Less:

DEVELOPMENT EXPENDITURE	9,398,721,900
Government Development	4,853,833,700
Capital Grants	2,650,983,500
Public Housing	1,893,904,700

SURPLUS	6,216,504,080
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Less:

SPECIAL TRANSFERS	1,850,000,000
Contribution To Medical Endowment Fund	100,000,000
Contribution To Eldercare Fund	250,000,000
Contribution To Lifelong Learning Endowment Fund	500,000,000
CPF TOP-UP SCHEMES	1,000,000,000

BUDGET SURPLUS	4,366,504,080
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FY2001 Expenditure Highlights

Social Development Sector

The budget for the social development sector, at \$12 billion, takes up the largest share (43%) of total government expenditure. The key expenditure items for this sector are:

Education

- \$2.7 billion to subsidise the operations of primary schools, secondary schools, pre-university centres and junior colleges
- \$160 million to subsidise the operations of Institutes of Technical Education
- \$550 million to subsidise the operations of the polytechnics
- \$900 million to subsidise the operations of the universities
- \$1.1 billion to develop educational infrastructure, such as the upgrading, rebuilding and construction of schools, and the acquisition of computer facilities and teaching equipment

Public Housing

- \$1.1 billion to rejuvenate older housing estates through the Selective En-Bloc Redevelopment Scheme, Main Upgrading Programme and Interim Upgrading Programme
- \$580 million to subsidise public housing
- \$110 million for rental rebates and service & conservancy charges rebates to HDB flat dwellers
- \$226 million for the Utilities Save scheme to help HDB households with utilities bills

Improving the Environment

- \$45 million to improve the living environment in public and private housing estates under the Housing Estates Management Programme
- \$110 million for the National Park Programme
- \$420 million over the next 10 years to upgrade hawker centres
- \$250 million to upkeep environmental health and cleanliness
- \$460 million to provide sewerage treatment services and control water pollution
- \$86 million to maintain an effective drainage system to prevent / alleviate flooding