1.0 Introduction

1.1 The Importance of the External Sector to Malaysia

External trade has become an important sector to many small developing countries which have adopted an outward trade orientation as their primary growth strategy. In the 1950s and 1960s, is was widely believed that developing countries could create industrial bases only by substituting domestic manufactured goods for imports. However, from the mid-60s onward, it became increasingly apparent that there were limitations to import-substitution growth. Consequently, these countries found another possible path to industralisation: via exports of manufactured goods to advanced countries. This group of countries which has successfully adopted these trade strategies is being referred to by the World Bank as the high performance Asian economies (HPAEs)[1].

While the achievement of the HPAEs refutes the conventional beliefs that development must take place via import substitution, there remain major controversies about the implications of the "East Asian miracle". Different economists have different explanations for Asia's miraculous growth. Some attributed the success to free trade and a hands-off government policy while others attributed the success to the effectiveness of the sophisticated government intervention and industrial policies. However, this paper would not explore the controversies surrounding this issue but only to examine the impact of the movements of Malaysia's exchange rate (which is somewhat related to the government's policies) on the volume of trade particularly exports.

[1]See World Bank, The East Asian Miracle: Economic Growth and Public Policy (Oxford: Oxford University Press, 1993).
[2]See Noland Marcus. 1997. Has Asian Export Performance Been Unique? Journal of International Economics 43, No 79: 80

Malaysia, a small and open economy is not much different the other developing countries. It has most of the characteristics of HPAEs namely:

- Open to international trade and more so over time. The degree of openness increased from 95.0% in 1970 to an estimated 224.0% in 1998.
- Export-oriented. This is reflected in the ratio of the value of its total trade to its Gross Domestic Product (GDP) where the ratio increased from 0.7963 in 1970 to an estimated 1.8479 in 1998, suggesting that Malaysia trades RM1.85 of every Ringgit of its output in 1998. Of this ratio, it exports RM1.03 of every Ringgit of its output in same year. The ratio of Malaysia's total trade to its GDP does not only show the link between trade and domestic income but also reflects the dependence of Malaysian on trade. Outward trade orientation or the degree of openness according to many development economists is the primary explanation for Asia's miraculous growth[2]. However, the controversy remains as to the causality between trade and economic growth. Malaysia's trade value has shown a significant growth in since 1970 with its exports registering an average growth of 17.37% between 1990-1998 while the real GDP grew an average of 7.0% between 1990-1998.

Table 1: Gross Export, Import Ratios and Degree of Openness, 1970-1998e

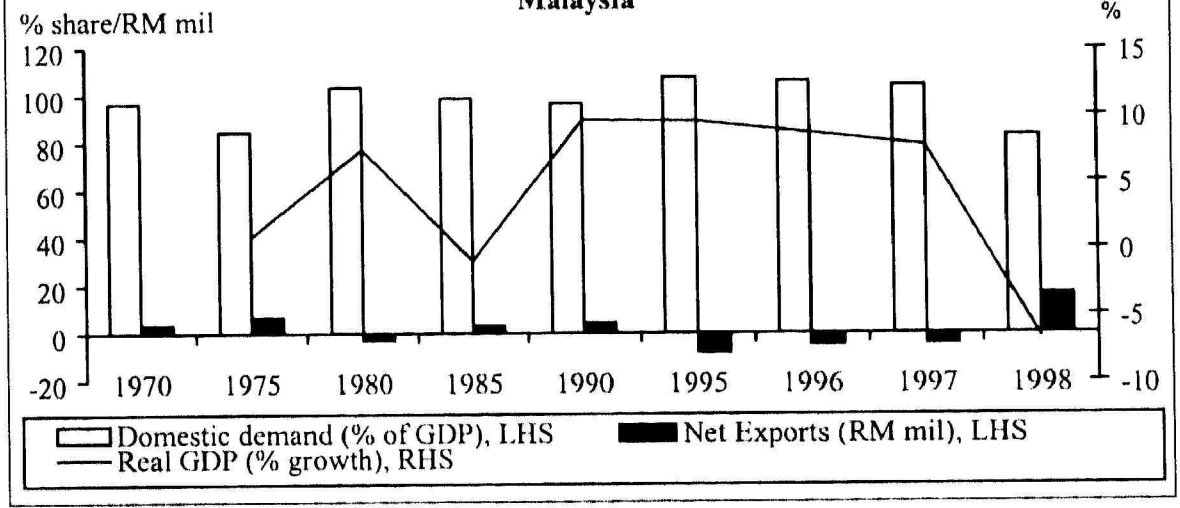
Year	Gross Export/GDP	Gross Import/GDP	Total Trade/GDP	Degree of Openness (X*+M**/GNP)
1970	0.4350	0.3613	0.7963	0.95
1975	0.4272	0.3948	0.8221	1.04
1980	0.5543	0.4614	1.0157	1.33
1985	0.4907	0.3929	0.8836	1.13
1990	0.6884	0.6838	1.3722	1.58
1995	0.8460	0.9025	1.7484	2.05
1996	0.7897	0.7907	1.5804	1.92
1997	0.8022	0.8023	1.6045	1.99
1998e	1.0288	0.8191	1.8479	2.24

Note: * Export of merchandise goods and non-factor services
**Import of merchandise goods and non-factor services
Source: Bank Negara Annual Report, 1998

Table 2: Trade and Real GDP, 1971-1998e				
Year	Gross Export (% growth)	Gross Import (% growth)	Total Trade (% growth)	Real GDP (% growth)
1971	-2.83	2.98	-0.20	10.0
1975	-9.45	-13.75	-11.57	0.8
1980	16.31	36.65	24.74	7.4
1985	-1.63	-7.56	-4.36	-1.0
1990	17.43	30.01	23.34	9.6
1995	20.18	26.57	23.40	9.5
1996	6.51	-0.03	3.13	8.6
1997	12.11	11.99	12.05	7.7
1998e	29.82	3.34	16.58	-6.7

Source: Various Bank Negara Annual Reports

Chart 1: % Share Contribution to Real GDP vs Real GDP Growth - Malaysia



Source: Bank Negara Annual Reports 1980-1998

Table 2 shows that trade is positively correlated with real GDP growth. This reinforces the Classicalists' theory that trade benefits a nation as it leads to specialisation and a more efficient usage of a country's resources. Through trade, Malaysia has managed to shift the structure of its economy from an agriculture-based economy to an industrial-based economy. This was evident as the agriculture sector has gradually shrunk in terms of contribution to the domestic income whilst the manufacturing sector expanded. The agriculture sector's share of the domestic output decrease from 28.3% in 1970 to 12.3% in 1998 while the

manufacturing sector's share increase from 11.5% in 1970 to 34.4% in 1998 (see Table 3).

Table 3: Sectoral Share of Output (% of GDP), 1970-1998

Year	Agriculture, forestry & fishing	Mining & Quarrying	Manufacturing	Construction	Services
1970	28.3	11.5	11.7	4.1	36.1
1975	27.0	10.1	17.4	3.8	39.4
1980	22.9	10.1	20.1	4.6	40.1
1985	20.7	10.5	19.7	4.8	43.5
1990	18.7	9.8	26.9	3.6	42.5
1995	13.5	7.5	33.1	4.5	45.1
1996	12.7	7.2	34.2	4.7	44.8
1997	11.9	6.7	35.7	4.8	44.9
1998	12.3	7.3	34.4	3.9	48.8

Source: Rating Agency of Malaysia (RAM) & Bank Negara Annual Report, 1998

The transformation of the structure of the Malaysia economy is also reflected in the structure of its exports. Exports of manufactured goods rose from 16.2% in 1970 to 82.9% total exports in 1998. The exports share of major commodities shrank from 76.7% in 1970 to 12.4% in 1998 (see Table 4).

Table 4: Commodity Breakdowns as % of Total Value of Gross Exports,1970-1998

Year	Major Commodities	Minerals	Manufactures
1970	76.7	7.1	16.2
1975	54.5	10.5	36.9
1980	45.4	24.5	30.1
1985	27.2	31.7	41.1
1990	22.4	17.8	59.7
1995	15.3	7.0	77.7
1996	14.8	7.9	77.2
1997	12.6	6.4	81.0
1998	12.4	4.7	82.9

Source: Bank Negara Quarterly Bulletins 1970-1999

Chart 2: Gross Exports of Manufactured Goods, 1975

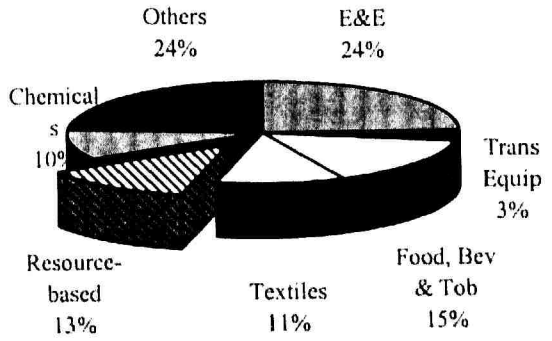
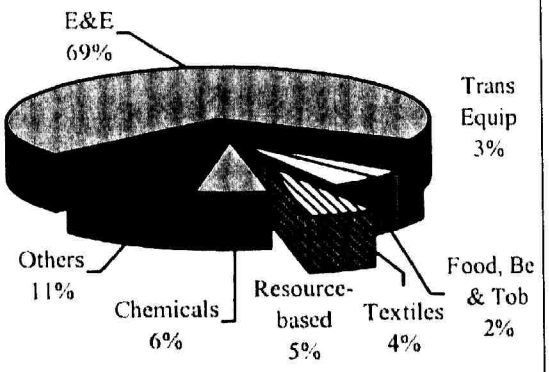


Chart 3: Gross Exports of Manufactured Goods, 1998



Note: Bev – beverage
Tob - tobacco
Trans Equip – transport equipment
E&E – electrical and electronics
Source: Bank Negara Malaysia Monthly Bulletin, July 1999

The structure of Malaysia's manufactured exports has became more diversified as Malaysia no longer relies on the manufactured resource-based goods namely rubber and wood products but has become more reliant on non resource-based goods namely electronics and electrical machinery and chemical products (see Chart 2 & 3).

Therefore, evidence suggests that trade has not only benefited the country in terms of contributing to the country's economic growth but also had a part in stimulating the structural changes of the domestic economy. Although it is evident that trade is the engine of economic growth, it has also made Malaysia, a small open trading country vulnerable to external shocks.

1.2 The Volatility of the Exchange Rate Before the Peg

The movement of the Ringgit in 1997 was influenced by international, regional and domestic developments. During the first quarter of 1997, the Ringgit appreciated steadily against the most major currencies. However, it came under pressure in the second quarter of 1997 as a result of the Thai Baht crisis. According to Bank Negara Malaysia[3], the volatility of the Ringgit in the second half of 1997 increased by 0.09 on the monthly basis. The volatility increased compared to the historical levels, although this was not significant when compared with the wider short-term fluctuations experienced by major currencies in recent years. In 1997, the Ringgit depreciated 31.4% against the composite basket of currencies of Malaysia's major trading partners (see Table 5).

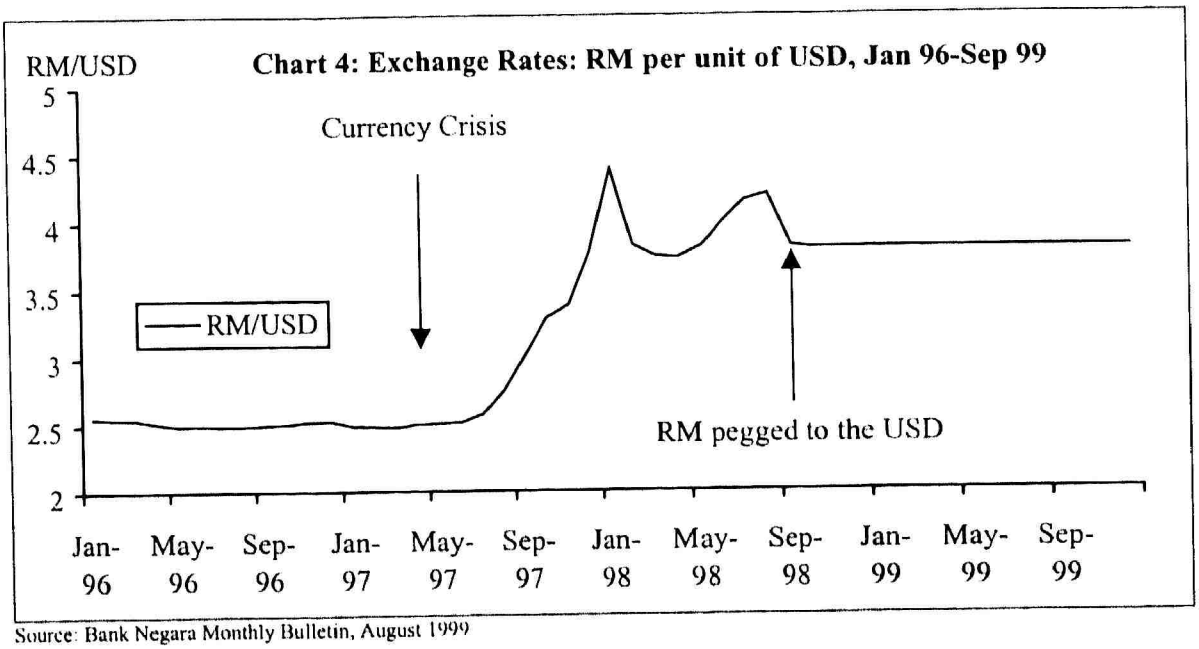
Table 5: The Ringgit Vs Other Major Currencies, 1997

Major Currencies	% Depreciation
USD ($)	35.0
Pound Sterling (£)	33.7
Yen (¥)	27.3

Source: Bank Negara Annual Report, 1997

The prolonged Asian crisis continued to exert downward pressure on the Ringgit during the first 8 months of 1998. However, Ringgit was less volatile in 1998 when compared with 1997. The Ringgit's standard deviation against the USD was 0.253 on a daily basis in 1998 compared with 0.419 in the second half of 1997[4].

[3] See Bank Negara Annual Report, 1997
[4] See Bank Negara Report, 1998



Source: Bank Negara Monthly Bulletin, August 1999

According to Bank Negara Malaysia, the pegging of the Ringgit on September 1998 reduced the volatility of the Ringgit (see Table 6).

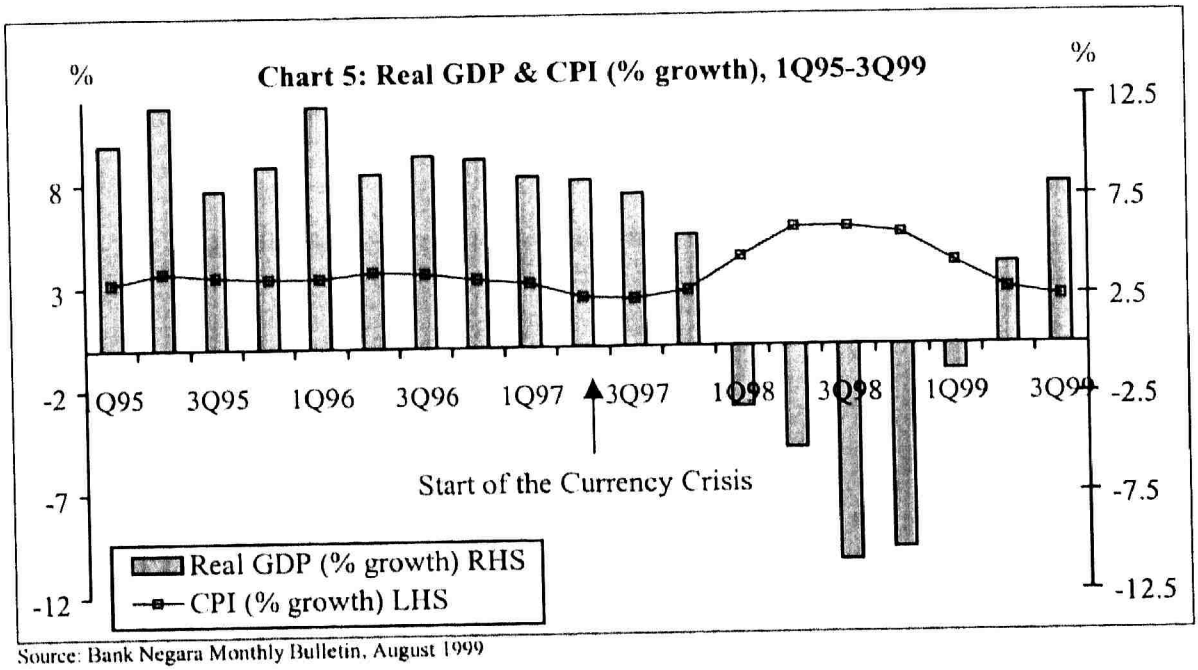
Table 6: The Volatility of the Ringgit against Major Currencies in 1998 Vs 1997

Standard Deviation	**1997**	**1998**
USD ($)	0.437	0.222
Pound Sterling (£)	0.749	0.326
Yen (¥)	0.198	0.307
Deutsche Mark (DM)	0.123	0.231

1.3 Depreciation of the Ringgit and its Impact on the Broad Economy

The severity and the depth of the crisis has had an impact on all aspects of the economy (see Table 7). The natural consequence of a devaluation of the domestic currency was the potential contraction of the economic growth. The contraction of the economy was reflected in the fall in aggregate demand for goods and services. The contraction on the aggregate supply side essentially reflects higher domestic

cost of production due to higher cost of imported inputs and services and higher financing cost.



Source: Bank Negara Monthly Bulletin, August 1999

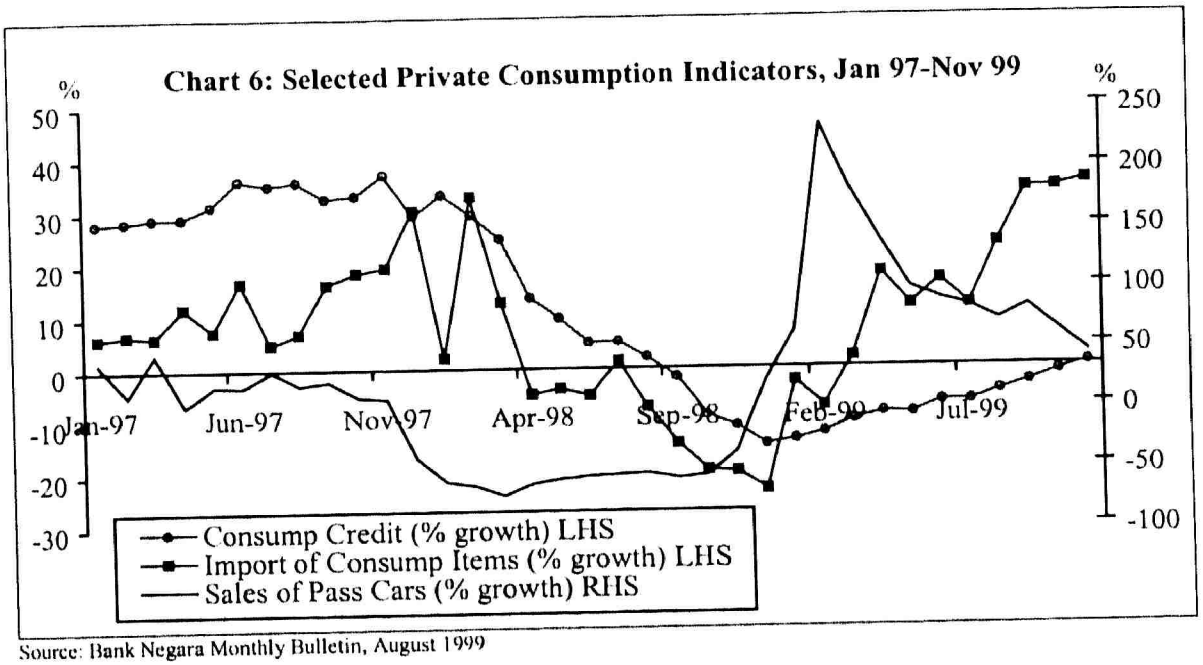
The lagged impact of the external shock was felt in 1998 when real quarterly GDP growths fell to the negative region (see Chart 5). Private consumption also suffered a severe contraction in 1998. Passenger car sales (a private consumption indicators) fell from a 14.5% growth in 1997 to –52.7% in 1998.

Table 7: Key Indicators, 1994-1997

Key Indicators	1994	1995	1996	1997
		% Change		
Real GDP	9.2	9.5	8.6	7.8
Inflation rate	3.7	3.4	3.5	2.7
Gross exports	27.0	20.2	6.5	12.4
Gross imports	32.8	24.6	1.5	12.0
Total external debt	6.1	15.8	16.3	68.2
Short-term capital flows (RM billion)	-8.5	2.5	10.3	-14.2
Real effective exchange rate	-3.5	-0.1	4.5	-24.5
Domestic credit expansion	16.5	28.3	27.6	26.5
Stock market capitalisation	17.9	11.2	42.6	-53.4

Table 7 (cont.)	1994	1995	1996	1997
Ratio of private credit to nominal GDP (%)	116.0	130.2	143.0	161.4
Money Multiplier (M3)	5.59	6.02	5.53	5.40
Reserves adequacy ratio (M3 to reserves)	3.3	4.3	4.7	6.6
3-month US Libor (%)	4.87	6.00	5.46	5.75

Source: Bank Negara Annual Report, 1997



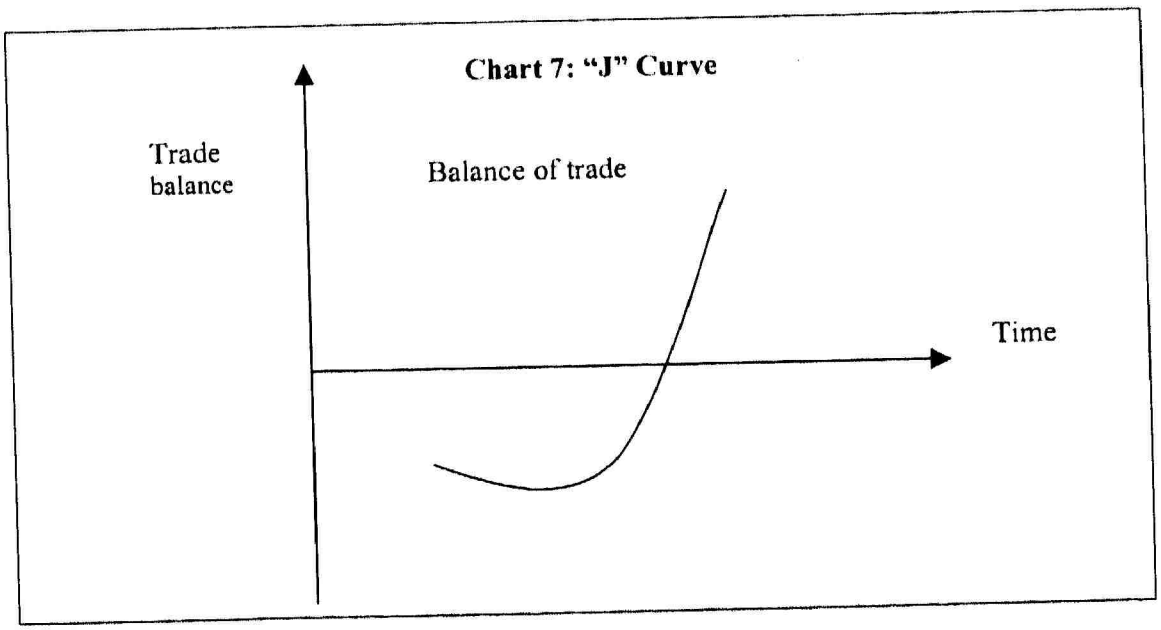
Source: Bank Negara Monthly Bulletin, August 1999

The inflationary pressure in 1998 was lower than expected. The impact of the higher import prices were not fully transmitted to domestic prices. Inflation rose 5.3% in 1998, lower than Bank Negara's earlier estimates of 7.0-8.0%. Based on Bank Negara's findings a 1% depreciation of the Ringgit would have increased the Consumer Price Index (CPI) by 0.176%. Therefore, a 28.3% depreciation in the average exchange rate against the USD in 1998 would have raised consumer prices by 5%. The lower pass through was due to the partial absorption of the higher prices by producers. Producers did so in order to maintain their market share in an environment of weak domestic demand and excess capacity.

1.4 Depreciation of the Ringgit and its Impact on Exports

As the focus of this paper is on the link between exchange rates and merchandise trade, this section will pay particular attention to the impact of the devaluation of the Ringgit on Malaysia's merchandise trade. According to conventional theories, the depreciation of a country's currency would improve the country's (of which experienced currency depreciation) external competitiveness. Literature shows that the "J-curve" effect will take place whereby the country will see a fall in its trade balance for several months or longer and then an improvement. Since the Marshall-Lerner type effects are the most likely in the very short run, it is quite possible that a country's trade deficit will worsen immediately after a depreciation of its currency. It is also due to the fact that the price change will take some time to work its ways through the economic system. Other non-price effects may take even more time to be effective.

Chart 7: "J" Curve



If a country faces a "J-curve" effect, it must have the foreign exchange funds to prevent further slide in its currency over the next few months after the depreciation.

Otherwise, it may face new pressures for devaluation and put itself once again in the downward sloping part of the J.

To examine the impact of the weakening Ringgit on trade, exports and imports have to be evaluated in volume terms and converted into foreign currency as the trade values in Ringgit terms are inflated. Malaysia's trade transactions can be assumed to be mainly USD-denominated (70%). However, Table 8 shows a simple conversion of the value of gross exports into USD. The percentages indicate the annual change in the nominal exchange rate of the average Ringgit against the US Dollar. From the start of the crisis, the Ringgit depreciated 3.2% against the US Dollar and exports in both Ringgit and USD terms grew 7.9% and 4.5% respectively. This negative correlation is prevalent throughout the periods when export earnings are in Ringgit terms. The negative relationship is not seen when exports are converted into USD (using the average RM/USD in the period).

The inverse relationship fits the arguments of the conventional trade theory whereby the depreciation of the currency should improve the competitiveness of the country's exports. However, this does not appear to be true when exports are converted into USD. Therefore, the numbers suggest that the increase in gross exports earnings in Ringgit terms were mainly attributed to valuation gains and not higher export volume.

Table 8: Exchange Rate Movements Vs Exports, Jul 97-Sep 99

Period	RM/USD*	Exports in RM	Exports in USD
		% annual change	
Jul 97	-3.2	+7.9	+4.5
Aug 97	-9.3	+11.4	+1.1
Sep 97	-17.0	+21.2	+0.6
Oct 97	-23.7	+27.7	-2.6
Nov 97	-25.5	+32.5	-1.2

Table 8 (cont.)	RM/USD	Exports in RM	Exports in USD
		% annual change	
Dec 97	-33.1	+30.2	-12.9
Mar 98	-33.8	+29.9	-14.0
Jun 98	-37.1	+42.1	-10.6
Sep 98	-21.0	+24.7	-1.4
Dec 98	-0.7	+13.6	+12.8
Mar 99	-1.6	+5.5	+3.8
Jun 99	+5.2	+11.9	+17.7
Sep 99	+0.4	+12.2	-12.6

* Note: A positive sign denotes appreciation of RM against USD and a negative sign denotes depreciation of RM against USD

Table 9: Gross Exports Earnings, 1998

Type of goods	Export Earnings in RM	Export Earnings in USD	Export Volume	Export Unit Value in USD
		% annual change		
Manufacturing	+32.8	-4.6	+1.4	N/a
Commodities	+17.4	-17.4	Stable	N/a
- palm oil	+64.4	+18.3	-1.0	+19.1
- rubber	-4.8	-29.5	N/a	-2.0
Mining	-2.4	-29.7	Declined	N/a

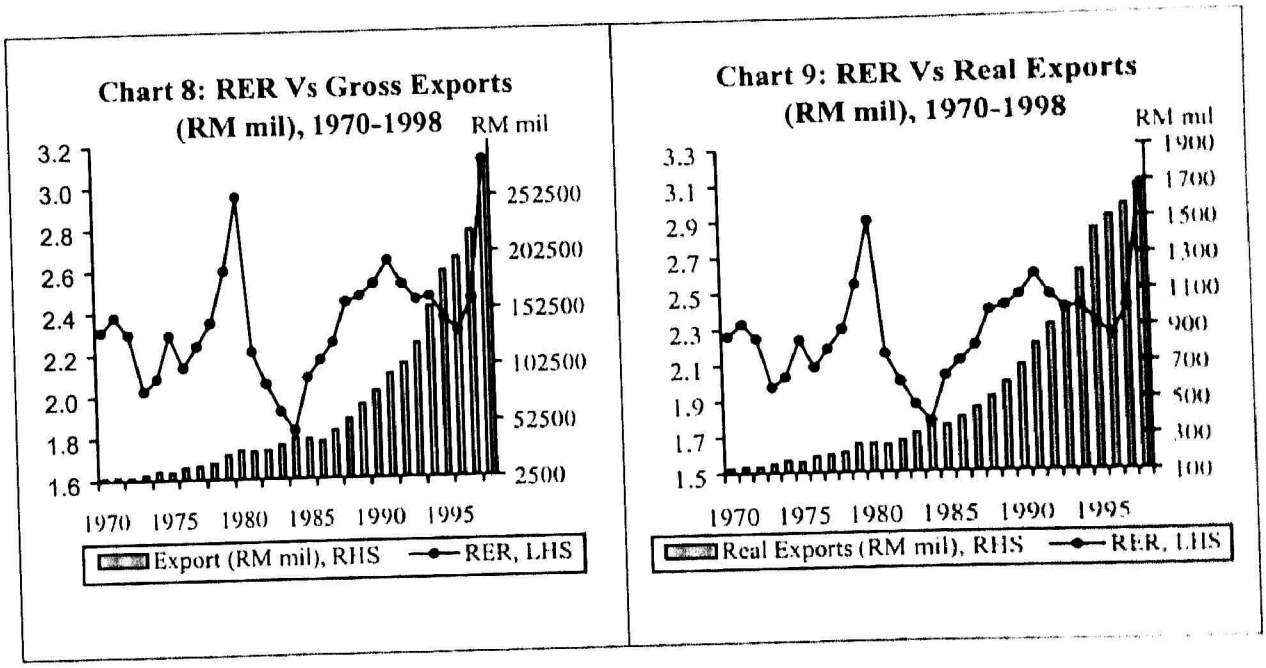
Source: Bank Negara Annual Report, 1998

The 28.3% depreciation of the RM against USD in 1998 had a positive impact on exports earnings in Ringgit terms. However, export earnings in USD terms declined. The impact of the depreciation Ringgit against USD on export volume appeared to be marginal (see Table 9).

According to Bank Negara, export earnings in Ringgit terms grew 29.8% in 1998, reflecting increases in exports of manufactured goods (+32.8%) and commodities (+17.4%). However, exports in USD terms declined 6.9%, as the marginal increase in export volume was offset by the relatively sharper drop in USD export prices.

1.5 Real Exchange Rates and Exports

In the study done by Takatoshi Ito, Eiji Ogawa and Yuri Nagataki Sasaki (1998) for the National Bureau of Economic Research found that for Malaysia's case the correlation for RER and export volume was weak in 1980s but become stronger in the 1990s. There was stronger correlation in the 1990s because the export structure became much more industrial-based namely the share of electronics became more significant in the recent years.



From charts 8 and 9, it appears that there is positive correlation between RER and real and nominal export earnings. The RER weighted by the percentage of a particular foreign currency used in the trade settlement. For example, in the 1990s, 70% of the trade settlement is in USD, 10% in Yen, 9% in Pound Sterling, 8% in Singapore Dollar and 3% in Deutsche Mark. The real exports is obtained by deflating nominal export earnings with the export price deflator. In this case, charts 8 and 9 show that exports earnings increased when the Ringgit depreciates against the currencies of its major trading partners.

However, exchange rate is just one of the factors which determines the competitiveness of an exported good. Other factors such as the productivity of the domestic supply factors and the country's trade policy are more important in determining the long run competitiveness of an exported good. The two other factors are implicitly reflected in the domestic as well as international prices in the computation of RER.

1.6 Objective

The previous sections have discussed the link between exports and movements in exchange rates. Exchange rate is one of the many factors that can influence exports. However, this paper will not explore Malaysia's long run equilibrium exchange rate. Neither will the paper explore issues that causes the misalignment of the exchange rates. Instead, the paper will focus on whether there is a link between real exchange rate volatility and exports.

In this paper, the definition of exchange rate uncertainty is similar to the defination of exchange rate volatility. The reason of the interchangeability is volatility in the nominal exchange rate creates uncertainty, hence there is no difference in the method of estimating volatility and uncertainty.

Previous empirical studies relating exchange rate uncertainties to trade have yielded contradictory results. As theory alone cannot determine the sign of the relation between real exchange rate uncertainty and exports, the paper will empirically evaluate this relationship by taking a mathematical approach adapting the approach of Caballero R. J. and Corbo V. (1989). From the findings, a conclusion can be

drawn as to whether the recent capital controls imposed by the Malaysian government that directly limits the movement of the Ringgit against other currencies (pegging the Ringgit to the US dollar at RM3.80 to USD1) has invigorated Malaysia's export volume. This paper's scope is also limited to the impact of real exchange rate uncertainties on exports of goods excluding factor and non-factor services.

The paper consists of five main chapters. The first chapter would be the introduction and the objective of the study. The second chapter would consist of literature reviews. Previous studies would be highlighted in this particular section. The methodologies and the conclusions of the studies would also be presented in chapter 2. Chapter three discusses the methodology of this study which includes how the model in this paper is derived and the sample data that would be used in this study. Chapter four reports on the findings of this study. Based on the findings, the final chapter would discuss the implications on the Malaysian economy.