Chapter 3   Literature review

3.1   Literature review: Malaysia

There are a few studies done on Malaysian balance of payments. Lim (1967 a & b) studied the West Malaysian external trade from 1947 to 1965. With high Gross Export Proceeds (GEP) to Gross Domestic Product (GDP) ratio and high foreign marginal propensities to import for all West Malaysian main exports, West Malaysia is susceptible to economic changes in its major exporting countries. In addition, Lim also highlighted the existence of declining trend in the West Malaysian balance of merchandise trade which was caused by the slower grow rate of export as compared to import as well as the declining terms of trade (TOT).

Munro (1973 a & b) argues that the Keynesian model used in the analysis of balance of payments equilibrium versus growth is less applicable compared to the monetarist model in the case of Malaysia.[3] This is due to the existence of strong link between the monetary system and balance of payments in Malaysia. Munro stressed that the domestic money supply has a strong link with balance of payments.

As pointed out by Ariff (1994), the deteriorating trade balance may be caused by low prices of commodities on export side, high price-inelastic import demand (due to rapid industrialization in the country) and the appreciation of

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[3] The Keynesian model ignores the presence of link between the monetary system and the balance of payments while the monetarist includes the link in the analysis. For the monetarist, balance of payments disequilibrium is essentially a monetary phenomenon. Balance of payments surplus

major currencies. In addition, the import of capital goods and intermediate goods as a result of foreign direct investments could also lead to trade deficits in short run for the case of export-oriented industries. In long run, the trend will be reversed. Besides, Ariff argued the overall trade balance is more important than the bilateral trade balance. This is because Malaysia has bilateral trade surplus with all major trading partners except Japan in recent years.

There are a few studies done on Malaysian export and import. Semudram (1981) in his research on the import and export functions of Malaysia from 1959 to 1976 estimate the model as follows:

$$IM^d = f(\frac{P_{IM}}{P_D}, Y, RES)$$

$$IM^S = f(P_{IM}, WP_{IM}, WGNP)$$

$$X^d = f(\frac{P_X}{WP_X}, WGNP)$$

$$X^s = f(\frac{P_X}{P_D}, YPOT)$$

where IM^d =   import demand

      IM^s =   import supply

      X^d =   export demand

      X^s =   export supply

      P_{IM} =   import price

      P_X =   export price

      P_D =   domestic price

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will increase the money supply. For the Keynesian, the impact of balance of payments flow on the money supply can be and are effectively sterilized.

Y	=	real income	
RES	=	measure of quantitative restrictions	
U	=	error term	
WP_{IM}	=	world import price index	
WGNP	=	world income	
WPX	=	world export price index	
V	=	error term	
YPOT	=	index of excess capacity (proxy: real GDP)	

The key finding in his research is that the relative prices are insignificant in the export and import demand equations. This may due to the relative stable export and import prices during the period of estimation. As such, he suggests the price substitution effect of devaluation on trade balance could be insignificant. The effect of devaluation on trade balance will largely depend on the real cash-balance effect, which reduces absorption relative to income.

Yusoff (1991) studies the determinant of the supply and demand of Malaysian exports of manufactured products based on annual data from 1960 to 1986. The significance of real exchange rate to export demand suggests the possible benefit of devaluation to improve Malaysian trade balance. Besides, world recession is found to have negative impact on Malaysian export demand.

Suhaimi (1997) carries out a study on demand and supply in aggregate manufacturing sector and its sub-sectors in Malaysia based on quarterly data from 1987 1Q to 1992 1Q. For export supply of the aggregate manufacturing sector, production capacity and the cost of imported inputs are found to be significant in both the equilibrium and disequilibrium models while the wage rate is significant only in the disequilibrium model.

Chua (1987) studies Malaysian current account (CA) determinants from 1961 to 1985 and he estimate the model as follows.

CA = f[log(TOT), OECD, HP, KF, log(USX), T]

where TOT   = terms of trade

OECD = GDP growth rates for OECD countries

HP   = percentage of government's foreign debt to GDP

KF   = fiscal condition as a percentage to GDP

USX   = real US dollar exchange rate

T   = direction of time flow

Based on the regression model above mentioned, log(TOT), OECD and KF are found to have positive impact on CA, that is, an increase in one of this variables will lead to larger current account surplus. In contrast, an increase in either HP or T will reduce the size of current account surplus. Exchange rate is the only variable, which is not significant in influencing CA.

As outlined from the above studies, most studies done on Malaysia are not focused on the issue of trade balance solely. Semudram (1981), Yusoff (1991) and Suhaimi (1997) study the demand and supply of export and import functions. The only empirical study focused on the determinants of Malaysian current account was conducted by Chua (1987) by using ordinary least square method.

Thus, there is no cointegration studies done on Malaysian trade balance to identify the long run determinants of Malaysian trade balance. This paper may serve to provide new perspective on the study of Malaysian trade balance.

In addition, these studies do not incorporate the data of 1990s (except Suhaimi (1997) which however only cover for manufacturing sector) of which Malaysia has undergone tremendous changes in factor endowments beside facing with intensified international competition. Besides, most of them use annual data rather than the quarterly data. As such, this paper serves to provide analysis of more recent data by using quarterly data.

3.2   Literature review: Other countries

On the other hand, there are some studies pertaining to U.S. and other countries. Nachance and Ranade (1998) studied the bilateral trade balances between India and its major trading partners. This is because the factors influencing trade flows differ substantially across India's trading partners. They

put forward the following hypotheses as the possible determinants of India's trade balance:

a) J-curve hypothesis: As postulated by the Mundell Fleming Model, nominal devaluation will improve the trade balance in the long run even though it may have adverse effect in short run, if the Marshall-Lerner conditions on export and import elasticities are fulfilled. The same conclusion is predicted by the Absorption approach but the condition is that the propensity of absorb is less than unity rather than the fulfilment of the Marshall-Lerner conditions.

b) Neoclassical general equilibrium hypothesis: trade balance responds favourably in the long run to a devaluation in the real exchange rates (REX) rather than the nominal exchange rates (NEX) where $REX = NEX \times (P^* \div P)$ where P^* and P represent foreign and local price level respectively.

c) Houthakker-Magee effect: Houthakker-Magee hypothesis claim that the elasticities of a country's demand for import (with respect to a rise in domestic incomes) and the elasticities of the demand for the country's export (with respect to a rise in foreign incomes) are likely to be unequal. As a result, an equiproportionate rise in domestic and foreign incomes will affect the trade balance.

d) Income effects: trade balance responds favourably to a rise in foreign incomes (as export is expected to increase) and adversely to a rise in domestic incomes (as import is expected to increase).

e) Monetary effects: Trade balance responds favourably to a rise in foreign money supply and adversely to a rise in domestic money supply (as it is perceived as an increase in domestic wealth, which led to increase in import).

f) Orcutt Hypothesis: According to Orcutt, trade balance may respond differently to the two components of real exchange rate, that is, nominal exchange rate and the relative price ratio. It may be attributed to the existence of a class of domestically produced non-traded goods as suggested by Krueger.

Hence, the model is as follows:

$$TB = f(\ln Y, \ln Y^*, \ln M, \ln M^*, \ln e, \ln p^*/p)$$

TB	=	trade balance
Y	=	industrial production index
M	=	real money supply
e	=	nominal exchange rate
p^*/p	=	price ratio
*	=	foreign

The econometric framework used in the research was Johansen's multivariate cointegration. It was found that the nominal exchange rates and real effective exchange rates are important determinants of trade balance. However, as the exchange rates fail weak exogeneity tests, its policy implication is not clear-cut.

Tai (1998), in analyzing the trade balance between Taiwan and Japan, specified the trade balance model (in term of ratio) as follows:

$$TB = f(M, Y, E, P)$$

$$TB = X \div IM$$

$$M = M \div M^*$$

$$Y = Y \div Y^*$$

$$P = P \div P^*$$

$$E = \text{Nominal exchange rate}$$

The tests conducted included ADF unit root test, Johansen cointegration test and FPE causality test. It is found that the impacts of M and Y to TB are higher than E in short and medium term. However, both policies have no long-term impact on TB.

Bahmani-Oskooee and Pourheydarian (1992) in their studies of long-run determinants of the U.S. trade balance use cointegration to test the relation of trade balance or current account against nominal exchange rate, real exchange rate, terms of trade, government budget, money supply, interest rates and real income. Their findings lend strong support for the use of fiscal policy to cope with U.S. trade problems while the money supply also appears to have long-run relation with trade balance. However, other variables including the exchange rates are found to have no long-run relation with trade balance or current account.

As suggested by the literature, the following macro variables will be used
to test against Malaysian trade balance:

> NEX   = nominal exchange rate

> REX   = real exchange rate

> M   = money supply

> R   = interest rate

> FB   = fiscal balance

> Y   = Gross Domestic Product

> TOT   = terms of trade

The NEX and REX are used because they are supported by the J-curve
hypothesis and the Neoclassical general equilibrium hypothesis as put forward by
Nachance and Ranade (1998). In addition, the incorporation of NEX and REX into
the analysis enables us to test the effectiveness of exchange rate policy on trade
balance. In addition, TOT is also another proxy for exchange rate policy.

For the same rationale, M and R are used as proxies to monetary policy
while FB is used as a proxy to fiscal policy to test the significance of such policies
on trade balance. Y is included as it is suggested by the theory as being significant
in influencing the trade balance.

worsen (from A to B) initially following the devaluation. However, it recovers (to

C) before regaining surplus.

Figure 4   J-curve
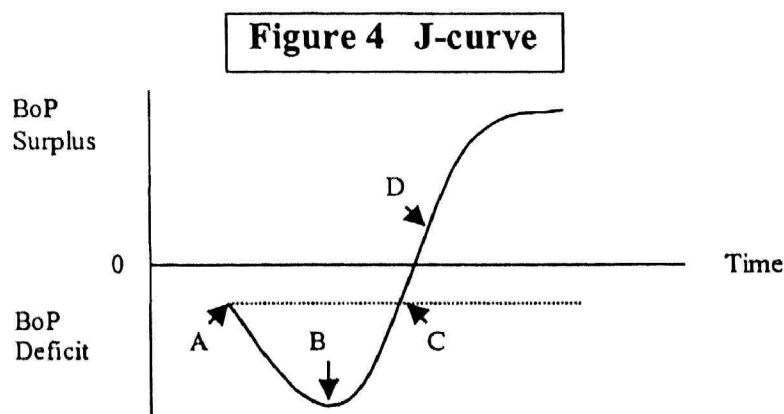
There are a few explanations for the J-curve phenomenon. Thirlwall and

Gibson (1992) argue that devaluation may not influence the relative price of traded

and non-traded goods immediately if international trade is subject to forward

contracts. Trade balance may worsen initially if the prices of exports are fixed at

the depreciated currency while the prices of imports were fixed at the currency of

the other nations.

Magee (1973) attributed the J-curve phenomenon to the possible mitigating

forces of rapid increase in the domestic activity relative to activity abroad that may

neutralise the effect of devaluation. In addition, the deterioration of balance of

payments from A to B in Figure 2 may be due to the fact that contracts already in

force in specified currencies dominate the determinants of the current account.

Over time, new contracts made after the devaluation begin to dominate, and the

"pass-through' of the devaluation or depreciation is affected.

Junz and Rhomberg (1973) list out 5 lags in the process between changes in exchange rate and their ultimate effects on real trade:

1. Lags in **recognition** of the changed situation

2. Lags in the **decision** to change real variables

3. Lags in the **replacement** of inventories and materials

4. Lags in **delivery** time

5. Lags in **production**.

Thirlwall and Gibson (1992) also discuss about another approach, that is, absorption approach. The absorption approach views trade balance as the difference between income and expenditure, that is, $TB = X - M = Y - E$ where Y is income and E is expenditure. However, this does not imply that deficit is caused by spending in excess of income. The deficit may be caused by gradual deterioration in the quality or relative price of export, which will be counted as expenditure.

The third approach is the monetary approach. According to Thirlwall and Gibson (1992), the monetarist views the balance of payments as a whole (which include the current account and the capital account). As a result of disequilibrium in the supply and demand of money within a country, international reserves move internationally. An excess supply of money will lead to an outflow of international reserves and a balance of payments deficit. On the other hand, an excess demand

will in turn lead to inflow of reserves and a balance of payments surplus. Other policies such as devaluation, tariff policy and other expenditure-switching policies will improve trade balance only if they increase the money demand by raising the domestic price level.

Subsequently, we will examine the relationship of terms of trade (TOT) and trade balance. According to Cashin and McDermott (1998), an adverse, transitory TOT shock will have three effects. Firstly, temporary TOT deterioration will produce a greater fall in current income as compared to permanent income[4]. This will induce consumption-smoothing behaviour. The economic agents tend to spread the effect of temporary fall in current income by reducing consumption over a longer period of time. As a result, private savings will fall which in turn cause the current account to deteriorate[5].

Secondly, the deteriorating TOT will increase the current price of imports and consumption relative to the future price of imports and consumption. This will induce the economic agents to tilt (transfer) their consumption into the future. As a result, the aggregate saving and current account will improve.

Finally, TOT deterioration will have real exchange rate effect. That is, it will affect the relative price of tradables (importables) to non-tradables. TOT deterioration will make the consumption of importables become more expensive

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[4] This is known as HLM (Harberger-Laursen-Metzler) effect or consumption smoothing effect (

relative to non-tradables. As a result, the economic agents will substitute importables with non-tradables and cause the relative price of non-tradables to increase. Thus, current cost of consumption is higher as compared to the future consumption. This will encourage higher private savings and improve the current account.

In short, the final effect of TOT deterioration on current account balances will be determined by the relative strength of income effect (that is the first effect) and the substitution effect (that is the second and the third effect).

In addition, we also include money supply (M) and trade balance in this study. According to Miles (1979), increase in money supply leads to increase in the real balance. Individuals perceive their wealth to rise, increase their consumption relative to income and as such trade balance deteriorates. However, the negative relationship between money supply and trade balance may not be observed for the following reasons. Firstly, nominal money supply may only be a small component of wealth. Secondly, response of expenditures to changes in wealth could be insignificant. Finally, money may not be perceived as net wealth by private sector. Thus, there is no real effect and trade balance will not deteriorate.

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[5] This is because $S - I = X - M$. Fall in savings (S) will cause the trade balance (X-M) to deteriorate if investment (I) remain unchanged.

The inclusion of interest rate (R) into our analysis is based on the argument put forward by Kreinin and Officer (1978). As pointed out by them, an increase in domestic interest rate raises the opportunity cost of holding money, producing a decrease of money demand. In turn, this creates a balance of payments deficit as excess money supply is dissipated abroad.

Besides, we also include fiscal balance (FB) as suggested by Lane and Perotti (1998). They discuss the relationship of fiscal policy and trade balance by using a two-sector small open economy model, which produce traded and non-traded goods. Fiscal expansion through more government recruitment will increase the demand for labour in the non-traded sector and thus it pushes up the overall wages of the economy. As a result, the output of traded sector will reduce. This will cause the nominal exchange rates to appreciate. Coupled with sticky prices (or nominal rigidities) in the economy, the sales will suffer a bigger drop. The contraction in the production of traded goods is likely to transform into declining trade balance especially with the existence of adjustment costs which prevents investment and consumption of traded goods from sharp reduction.

Miles (1979) viewed government consumption as a source of expenditure in the economy may cause trade balance to deteriorate assuming output to be constant. This is in line with the absorption approach which present trade balance as $TB = Y - E$ where Y represents income or output and E represents expenditure.

Finally, we also incorporate income (Y) into our analysis. According to Miles (1979), if current economic conditions strongly influence expectations about the future, a rise in the current growth rate will increase the expected increase in income for the current year as well as the future years. As a result, permanent income will increase more than current income. This will cause current demand to rise more than current supply and trade balance will deteriorate.

Looking from another perspective, higher economic growth rate of a nation (if it is caused by exogenous demand shock) as compared to the rest of the world may lead to deterioration in trade balance. This is because an increase in the relative growth rate of a nation increases the demand for money and goods relative to elsewhere, increasing the flow of these commodities into the country and causing the trade balance to worsen.