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PRELIMINARY IMPACT OF THE 1998 CAPITAL CONTROL: AN ANALYSIS OF GDP

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ABSTRACT

The 1997 financial crisis which, later, translated into an economic crisis has brought about the implementation of capital controls as a policy response in Malaysia. In this study we examine the effectiveness of capital controls on sixteen components of GDP. Using the ARMA-intervention modeling technique, we found that half of components have positive significant post capital control impact. The components that benefited from the implementation of this policy include rubber, palm oil, food, textile, construction, wholesale and retail, transport and finance. Thus, the use of capital control did confer positive results despite the fear of certain orthodox economists.

INTRODUCTION

Overview of the issue

The 1997 economic crisis rejuvenated the discussion on the merits of capital control. A new consensus seems to emerge on the grounds that capital control can be a useful instrument to reduce macroeconomic instability especially in two situations. First, capital control acts as a 'stopper' when there is a sudden outflow of short-term capitals which could lead to a banking or liquidity crisis. Secondly, capital control can be an extremely useful instrument to shield domestic financial market from excessively large inflows of capital in the absence of perfect liberalization in the market. Capital controls are used to reduce excessive exchange rate variability. Also, it provides more autonomy to the monetary authorities in setting and controlling domestic interest rates.

Capital control may be favoured if the stabilization effect helps in minimizing the occurrence of financial crisis but Aseidu and Lien's (2003) analysis did not support this conjecture. They found that capital control deterred foreign direct investment (FDI) especially in the 1990s and suggested that it was more costly to impose restrictions compared to liberalization. Despite this notion, we can see that lately, there had been large capital inflows into countries without free capital mobility such as China and Vietnam. Another argument against capital control is that it will increasingly be circumvented and the cost of distortions created by this will continually grow over time. Also, when capital controls are removed or relaxed there may be a sharp fall in the exchange rate and the possibility of a renewed crisis becomes more apparent. But, if this opportunity (depreciation) is used to undertake the necessary restructuring, then the economy would

be opening itself to international capital markets with strengthened fundamentals. Dooley (1996), Edwards (1999) and Hutchinson (2002) questioned the effectiveness of capital control in insulating countries from speculative attack. In fact, Hutchinson (2002) found that countries without capital controls tend to have greater exchange rate stability and fewer speculative attacks.

Edwards (1999), Grauwe (2000), Dornbush (2001) and Masih (2004) proposed that the use of capital control should only be a temporary measure, not a permanent one if this country wants to integrate itself in the world economy. Capital controls are normally objected on the grounds that they are ineffective and may be very costly. The ability of capital controls to insulate macroeconomic and financial shock had been questioned especially for a small developing open economy like Malaysia. It has been argued that there will be incentives to evade capital controls through the rapid evolution of new alternative and complementary financial products. This incentive to evade controls will be further stimulated by factors such as nominal yield differentials, penalties imposed on those who tried to imposing restrictions as to how much profits that can repatriated. As investors try to avoid these restrictions, the cost of enforcing capital controls will rise and as the effectiveness of such controls erodes, macroeconomic policies can only be sustained if the controls were further tightened. Eventually, this increases the distortion that capital controls can potentially create. Another recent study by Forbes (2004) indicated that the accumulation of different costs of capital controls can considerably depress productivity and growth.

Statement of problem

Huge inflows of foreign capital into the South East Asian countries in the 1990s were consistent with liberalization of capital account adopted by these countries in the 1980s. Malaysia for example, began to liberalize its capital account in 1985 coupled with a range of incentives such as tax exemption to attract foreign direct investment. The benefits of liberalization of the capital account leading to greater foreign investment are numerous. Transfer of technological and managerial expertise, lower cost of capital, stimulation of domestic financial market development which indirectly promotes growth of the economy. Studies by Levine and Zervous (1998) on 16 emerging market economies and Ibrahim (1999) on the Malaysian stock market has shown that following liberalization, the stock market became larger, more liquid and more volatile. Subsequently, Quinn (1997) and Forbes (2004) found that capital account openness has significant relationship with growth. Capital account liberalization also has costs. As capital restrictions were removed, not only foreign direct investment intensified but short term portfolio investment would also increased. Short term portfolio investments or better known as 'hot money' are often blamed for having a destabilizing effect since it is subjected to immediate reversals in case of crisis or speculation. Being more integrated with the world makes a country more vulnerable to banking and currency crisis. The most cited evidence is the 1997 Asian crisis.

Prior to May 1997, the South East Asian countries experienced significant growth rates

between 6 -11.5% per annum. This miracle however, suddenly reversed into a financial crisis and later, aggravated into an economic crisis which effected these countries at varying degrees. Malaysia was not spared from this mishap. July 1997 marked the beginning of the financial crisis when the Malaysian ringgit was heavily attacked by currency speculators. The spillover effect of the currency speculation was the deterioration of the financial sector indicated by higher non-performing loans due to higher interest rates and a severe reduction in the stock market capitalization. The real economy contracted by 4.8% in the first half of 1998. The Malaysian government responded to the crisis by implementing the IMF-type programs. However, the economy continued to contract further. By mid 1998, the government began to rethink the compatibility of the IMF-type programs as a response to financial crisis. On September 1st, 1998 the government bravely embarked on selective capital control and exchange rate policy. To date, certain economic variables such as reserves, exports and the stock market began to show progressive recovery. However, many other real sectors such as the agriculture sector, industrial sector has yet to be studied. Thus, the aim of this study is to provide some indications on how these sectors fare, five years after the implementation of capital controls.

Objective of study

The objectives of this study are:

a. To examine the implications of capital control on the Malaysian economy, generally.
b. To examine which components of the GDP benefited from the implementation of the 1998 capital control.

LITERATURE REVIEW AND BACKGROUND INFORMATION

Literature review

The instrument used in capital control varies throughout practicing countries. To date there is a wide range of instruments and methods used ranging from the imposition of specific taxes for example Tobin tax, credit restraints, controls on the influx of 'hot money', control of outflow of money and many more. A majority of work done on capital controls was country-specific since the instruments and duration of the controls tends to vary extensively. Also, these controls were employed to explicitly achieve certain macroeconomic goals as advocated by the ruling authorities before the controls were implemented. Asiedu (2003) for example classified capital controls into two major categories: administrative or direct controls and market-based indirect controls whilst Edwards (1999) and Muller (2004) for example restricted their discussion on controls of capital inflow and outflow.

The existence and use of capital controls can be traced back long before Bretton Woods. Prior to June 1979, the British government controlled the residents' outflows which was primarily directed at portfolio investment abroad by United Kingdom residents and foreign currency lending by residents which included the United Kingdom's banks (Marstan, 1992). Germany imposed controls to limit inflow rather than outflow of funds

in an attempt to shield the domestic financial markets from international pressures between 1970-74. The German government consistently used capital control to maintain easier domestic monetary conditions until the late 1980s. In early 1980s, in France, the franc parity was fixed in the narrow band of the EMS but was frequently adjusted. In this particular case, controls had provided considerable insulation during episodes of upward movement in offshore rates driven by expectations of devaluation. Likewise, the controls imposed in the Netherlands during the mid 1970s until early 1990s have had negligible impact. Spain, Portugal and Ireland reintroduced some form of capital controls during the September 1992 turmoil in the EMS. These controls were removed not long after its implementation.

Between 1961-1979, the United States had a series of capital control programs under different administration. President Kennedy's administration responded to the overvalued US dollars by introducing the Interest Equalization Tax on foreign securities purchased by Americans. During President Johnson's administration, Voluntary Foreign Credit Restraint Program and restrictions of Foreign Direct Investment Program were introduced. These controls were more comprehensive compared to the controls during Kennedy's administration because they restricted the outflows of capital by both banks and non-banks. However, these restrictions had led to the emergence of offshore financial markets due to large interest rate differentials, especially between 1971-1973. Shafer (1995) described this as leakages from the implementation of capital controls in the United States. The most spectacular visible evidence of this leakage was the birth and growth of the Eurodollar or the Eurocurrency market during the 1960s. Later, this Eurocurrency market became increasing popular and had fulfill new roles in the international financial sector.

Three South American countries namely Brazil, Columbia and Chile have relied on capital controls at almost the same time period. Brazil implemented controls on capital inflow between 1993 to 1997, Chile undertook similar measures between 1978 to 1982 and between 1991 to 1998 and Columbia, between 1993 to 1998. The Columbian authorities imposed taxes across various maturities. The implementation of these controls between 1967-1993 were justified on the basis that it provides obstacles to capital outflow (Kamas, 1997). The reserve requirement were to be maintained for the duration of the loan and this applied to all loan with maturity of five years or less, except for trade credit with a maturity of four months or less. The percentage requirement, however, declined as the maturity lengthens for example from 140% for funds that were 30 days or less to 42.8% for five years fund. Cardenas and Barrera (1997) suggested the non-remunerated deposits had been successful in inducing a recomposition of foreign liabilities in favour of long term maturities and with these positive results it is most unlikely that this country would be vulnerable towards capital flow reversals.

Chile provides another interesting case. The Chilean capital controls were employed to achieve three main macroeconomic goals. The first goal is to slow down the volume of capital inflow and to alter its composition into longer maturities inflow. Secondly, to reduce real exchange rate appreciation due to these inflows and thirdly, to boost monetary

policy autonomy by maintaining a high differential between domestic and international interest rates. Despite stringent capital controls undertaken between 1978-82, financial crisis still struck the Chilean economy in 1981-82. Peso was devaluated by approximately 90% and a large number of banks had to be bailed out by the government. Thus, in the absence of appropriate banking regulations and without a prudent financial system, capital control may not be a useful tool to reduce a country's vulnerability towards financial crisis. In June 1991, Chile again introduced a Tobin tax-type of restriction on capital inflows. All portfolio inflows were subjected to a 20% unremunerated reserve requirement (URR). For portfolios with maturities of less than one year, URR was applied according to the duration of the inflow and for portfolios of more than a year, URR will be calculated on a one-year basis. URR rate was increased to 30% in July 1992 because private sectors promptly find ways to elude from these controls. Soon, trade credit and loans related to FDI were also subjected to this reserve requirement. By 1995, the controls were extended to the Chilean stocks traded on the New York stock Exchange and international bond issues. This rate was reduced to 10% in June 1998 and further reduced to zero three months later. These controls seemed to have changed the maturity of composition of inflows in favour of medium and long term investment but it did not reduce the volume of the inflow (Muller, 2004). Capital controls had somewhat increased the cost of capital in Chile where the cost of funds for smaller firms are twice higher than large companies who have access to international financing (Edwards, 1999).
Unlike Chile and Columbia, Brazil opted for a greater variation across assets. For example, foreigners investing in the stock market had to pay a 1% tax and a similar tax must be paid on fixed income investment. However, in the wake of the Mexican crisis, this particular tax was lifted to necessitate more inflows. This type of capital control taxes tend to fall heavily on investors that have relatively short horizons and less heavily on longer term investors. In other words, these policies were designed to curb the influx of 'hot money' and speculative capital inflow. Following the Latin American debt crisis in the 1980s, Brazil stepped up controls on capital outflow, only to end up with further decline in growth rate and rampant unemployment. Unlike Brazil, Chile and Columbia did not impose any controls on outflows but these two countries restructured their banking and financial systems, thus becoming better off than their counterparts in the region with positive GDP growth in the 1980s.

Following a coup in 1961, the regime of General Park created a Korean state-led bank-based growth model. This system insulated the economy from foreign shocks through capital controls which was claimed by Crotty and Lee (2002), as the key institutional foundation for the country's economic miracle. The Korean government used control of finance to maximize savings and the rate of capital accumulation which were then used to finance its development plans. In the late 1980s, Korea experienced a radical transformation in both economic and political areas. By 1995, the authorities had completed the removal of the three pillars supporting the traditional model - domestic financial regulation, tight capital controls and control of chaebol investment. In less than two years, the economy collapse.

Kaplan and Rodrik (2001) compared the impact of capital controls in Malaysia to other

policies that were implemented by the crisis-hit economies namely South Korea, Thailand and Indonesia. The time shifted difference-in-difference method was used to examine the effectiveness of the remedial policies undertaken by both countries. Their findings suggested that Malaysia fares much better compared to South Korea, Thailand and Indonesia since there were smaller declines in employment, faster economic recovery and a swift turnaround in the stock market. However, the authors argued that the IMF-type policies undertaken by the Malaysia when the crisis set in had somewhat delayed early positive recovery. Mohd Sidek (2003) suggested that there is little evidence that capital control improved the growth of export, import and GDP. However, capital control had reduced the volatility of stock returns and that nominal export, import and reserves had benefited from this policy.

Edison and Reinhart (2001a) connoted that the capital control policy in Malaysia did aligned closely to the original objectives namely to achieve greater exchange rate and interest rate stability and a higher degree of policy autonomy. They used the principal component analysis, block exogeneity in VAR framework and GARCH tests to assess contemporaneous co-movement, temporal international causality and changes in cross border volatility links respectively. They concluded (2001b) that the capital control policy as implemented in Malaysia was effective in reducing volatility spillovers, interest rates became less variable and foreign exchange reserves improved. However, Mohd Sidek (2003) argued that this study were limited to financial data and no other variables were tested, thus the conclusion should not be generalized for the whole of the Malaysian economy.

Dornbush (2001) argued that Malaysia had a more favourable pre-condition - fairly low inflation, well run central banks, high domestic savings due to its compulsory savings policies, robust export industries, large and growing middle class and relatively lower wage rates. Thus, capital control may not confer any positive macroeconomic effect. Also, the implementation of capital controls coincides with the reversal of Yen, Federal rates cuts and other crisis-affected countries such as Thailand, South Korea were showing signs of recovery. The depreciation of Yen was viewed as an indirect way of assisting recovery in South East Asia. In late 1998, Brazil and Russia experience severe economic crisis, thus investors once again turned to the South East Asian countries. In a way, Malaysia had benefited from this positive growth from its Asian counterparts and hitherto, it was not so much of capital control that brought about the positive effects. Johnson and Mitton (2002) contended that upon the announcement of capital control, market discipline was reduced and its cost was rather substantial. A later study by Mohd Sidek (2003) showed that despite the stock market slump in September 1998, i.e. after the announcement of capital control, the volatility of the stock market indices returned to almost at its original position prior to the crisis by July 2002.

Capital control in Malaysia

On 1st September 1998, capital controls were implemented accompanied by exchange rate peg to the US dollar and an easing of the monetary policy. The main aim was to halt

economic contraction brought about by capital outflows and depreciating exchange rates. This was a sensible decision at that particular time since free capital mobility coupled with easy monetary policy would result in further depreciation of the exchange rate. Thus, capital control is a tool to prevent capital outflow which could lead to further depreciation of the exchange rate. Based on Mohamed (1998), the capital control package was divided into three major categories. First, the offshore ringgit was eliminated to oppress the currency speculators from access into ringgit accounts of non-residents in Malaysia. Malaysians, except those engaged in exports were prevented from holding bank accounts or taking cash exceeding RM10,000 abroad. In order to stabilize the stock market, Malaysia advocated a closure of CLOB. Unauthorized stock market counters in Singapore were subsequently banned to prevent runs on companies as well as banks.

Secondly, the government fixed the exchange rate at RM3.80 per US dollars to regain competitive advantage in exports although Malaysia can very well fixed the ringgit at RM2.50 to US$1. It is hoped that through pegging the exchange rate, businesses would be confident to undertake transactions with other countries since losses from currency appreciation or depreciation would be almost nil. At this point, imports would become more expensive and thus, there will be reduction in relatively unnecessary imports. This objective was partly achieved almost immediately when the exchange controls were imposed. Export oriented firms, however, were given exemptions on foreign exchange controls so that they were not discouraged by these controls. Reserves shot up owing to reduction in imports. The third category is the imposition of a 12-month-ruling to restrict capital market volatility. If this rule was not imposed there is a possibility that foreign shareholders may sell their shares. Since foreign holding was approximately 30% of KLSE's stock market capitalization, the sale of their shares would lead to a sharp downturn in the KLSE and an acute depletion of the foreign exchange reserves. Due to panic behaviour of some investors, one week after these controls were announced, the shares prices tumbled down. This 12-month-rule was eventually lifted and replaced by a fixed 10% exit tax on 21 September 1999 when market confidence returned to the South East Asia and capital reversals were no longer a treat. Instead, late 1999 marked the return of capital inflow into East Asia. This 10% levy was intended to ensure that the capital that entered Malaysia was based on fundamental justifications rather than for speculative purposes. However, this levy would not be beneficial enough in the event of capital flight in the future. The reinstatement in the Morgan Stanley Capital International Indices (MSCI) indicated that most of the controls imposed had been lifted. The only control that remained was the exchange rate control. It would be worth noting that the foreign direct investment (FDI) was not subjected to this selective capital control. Investments classified as FDI can repatriate both profits and sale of assets. As for exporters, they were given a 6 month period to repatriate the proceeds back into Malaysia which will help build up foreign exchange reserves and thus providing grounds for Malaysia to implement exchange rate controls.

Through Danaharta and Danamodal, the acquisition of non-performing loans had helped raised liquidity and pumped greater credit to revive the contracting economy. Thus, Malaysia managed to avert from deflationary pressures through a revival of credit flows

from late 1998. Interest rates were reduced from 11.5% in 1997 to a much lower point of 3.75% which had significantly helped reduce default loans. Lower interest rate coupled with the acquisition of non-performing loans had help to assist recovery in several sub-sectors for example the manufacturing sector accounted for 15.6% of the non-performing loans acquired by Danaharta at the end of December 1998. This low interest rate regime, however, did not spark capital outflow owing to the controls on capital flows that have been placed earlier.

An overview of the Malaysian real sector economy

Since the 1980s, there was a shift in government policy to promote the private sector as the engine of Malaysia's economic growth. Prior to that, Malaysia's economic structure had several weaknesses, among them, a strong dependence on primary, non-oil commodities and a narrow manufacturing base. Thus the government was set out to encourage private sector activities in manufacturing via tax incentive, liberalization of restrictive laws and governmental procedures, and deregulation of cumbersome rules and regulation. Also, several measures were undertaken to foster foreign investment in local private industry and also major government projects. The success of these policies began to emerge by late 1980s. Following the 1985 recession, the Malaysian economy transformed itself from an agriculture based economy to a manufacturing based economy. The economy, on net, had become an exporter of manufactured goods. As expected the importance of the agricultural sector had declined significantly. In 1985 the agricultural sector contribution was 28% of GDP. By 1999, its contribution declined to only a mere 9.4% of GDP. Private investment shot up from 6.2% in real terms in 1987 to an average of 25% per annum between 1988-1991. Manufacturing as a percentage of GDP rose from 16% in 1975 to 19% in 1985, 28% in 1991 and 35.7% in 1999. The services and construction sectors also expanded considerably. On the whole, Malaysia is heavily dependent on foreign direct investment especially in the manufacturing sector and there has been increasing reliance on foreign expertise. In a way, this has undermined the development of domestic entrepreneurship and resource based industries.

To date, Malaysia's economic expansion has been financed largely by the banking system. The stock market, foreign direct investment (FDI) and bonds have considerable contribution towards financing the growth sectors. In many ways, Malaysia has depended on FDI to create job opportunities and most importantly, for technology transfer. Another interesting feature about FDI in Malaysia is that these investors do not necessarily bring in 100% capital that is intended to be invested. Instead, they are allowed to borrow from the Malaysian banks to finance their investment needs. For every RM1 that they invest, they could borrow at least RM3. This means that they only need to bring 1/3 of their intended capital investment into Malaysia. This is why, undoubtly why Malaysia has become an attractive site for investment and it continued to have influx of FDI despite the crisis. Malaysia is able to do this since it has a large external reserve, ample liquidity of about 38% of GDP owing to its high savings rate. Besides that, Malaysian banks can also make profits from lending to foreign investors. Thus, this can be considered as a win-win situation for both Malaysia and the investors.

METHODOLOGY AND DATA

Methodology

We employed the simplest form of the Box-Jenkins (1976) approach to pure time series modeling. In the identification stage, a tentative ARMA model is specified to approximate the data generating process for the underlying series. Both correlogram and partial autocorrelation functions were examined. The theoretical autocorrelation function for an

AR(1) process is given as below:

$$\rho_k = \varphi^k$$

where is the first order autoregressive coefficient. Stationarity of the process requires,

$$| \varphi | < 1$$

A non-stationary first order condition process will reveal a correlogram which shows no sign of decay in the absolute magnitude of the estimated autocorrelation. If the estimated autocorrelations do not die out or show sign of decay, the data must be transformed to induced stationarity. A common stationarity-inducing transformation is to take logarithms and then to first difference once.

Once stationarity has been achieved, the next step is to identify the orders of the ARMA process. For a pure moving average process of order q, MA(q), the correlogram will tend to show estimated autocorrelations which are significantly different from zero only up to lag q, while partial autocorrelation function will taper off. For a pure autoregressive process of order p, the estimated partial autocorrelations will tend to be insignificantly different from zero beyond lag p while the correlogram will show the estimated autocorrelations tapering off. If neither the correlogram nor the partial autocorrelation function show a definite cut off, then a mixed model is suggested. In our case, a mixed model is used for all variables. Both the correlogram and the partial autocorrelation function show a spike at lag 1 followed by an exponential decay which indicates ARMA(1,1) process. The ARMA(1,1) for these variables can be expressed as:

$$\log x_t = \alpha + \phi_1 \Delta x_{t-1} + \theta_1 \varepsilon_{t-1} + \varepsilon_t \quad (1)$$

or

$$\Delta \log x_t = \alpha + \phi_1 \Delta x_{t-1} + \theta_1 \varepsilon_{t-1} + \varepsilon_t \quad (2)$$

where x the variable under consideration.

The next step is to incorporate an intervention dummy. The intervention analysis, originally proposed by Box and Tiao (1965) and further extended and tested on real data by the same authors in 1975, is used in our analysis to examine the impact of capital controls on disaggregate data of manufacturing and agriculture sub-sectors. To date, this method had been widely extended by using all kinds of variation; for example, Tombini and Newbold (1992), McDowall et. Al (1980) had modified the original model to correct for autocorrelation to incorporate the type of impact - abrupt, transient, gradual or

permenant. Bonham and Gangnes (1996) had incorporated transfer functions into the intervention analysis whilst Lloyd (1996) introduced innovative outliers and additive outliers in their intervention analysis. For the purpose of this study, dummy variables are used to represent the inception of capital control. D1 will represent the pre-crisis period and D2 will represent the post capital control period. For all the variables, D1 will take the value of one (1) between quarter 1 1980 to quarter 2, 1997 and zero (0) for the rest of the period. D2 will take the value of one (1) from quarter 3, 1998 to quarter 4, 2003 and zero from quarter 1, 1980 to quarter two, 1998. This intervention dummies are inserted into equations (1) and (2),

$$\log x_t = \alpha + \phi_1 \Delta x_{t-1} + \theta_1 \varepsilon_{t-1} + \delta D1 + \lambda D2 + \varepsilon_t \quad (3)$$

or

$$\Delta \log x_t = \alpha + \phi_1 \Delta x_{t-1} + \theta_1 \varepsilon_{t-1} + \delta D1 + \lambda D2 + \varepsilon_t \quad (4)$$

The hypothesis is as follows,
Ho :$\lambda \geq 0$; suggest that capital control improved the macroeconomic variables
H1 :$\lambda < 0$; otherwise

Data

Quarterly data is used for all 16 components of GDP between quarter 1, 1980 to quarter 4, 2003 were used. Data is obtained from the Department of Statistics - Yearbook of Statistics: Malaysia.

RESULTS

The aim of this empirical study is to test whether the implementation of capital controls has brought about positive improvements to the disaggregated components of GDP. The estimated results are represented in Table 4.1. Following the Box-Jenkins procedure of model specification, correlograms and partial correlograms were examined. All models were estimated in logarithmic terms so as to induce stationarity. Four out of the sixteen components of the GDP namely other agriculture, finance and real estate, transport and communication and construction had to be differenced once to obtain stationarity. Diagnostics tests were undertaken to ascertain the robustness of the results. The diagnostic tests include the Jarque-Bera test for normality, the L-M test for serial correlation, White's test for hetroscedasticity, ARCH test for autoregressive conditional hetroscedasticity and the Ramsey Reset Test for specification of the model.

The overall goodness of fit is reasonable. All models except for other agriculture, livestock, forestry and fishing, construction, and wholesale and retail have fairly large F-statistics, supported by significant p-values suggesting that the explanatory variables can help explain the behaviour of the GDP components. All constants have positive

values except for construction and transport, storage and communication. The autoregressive terms, AR(1), are all positive. The moving average terms, MA(1) are positive for three components of the GDP namely palm oil, basic metal and fabricated metal; and are negative for the other nine components of the GDP.

The effect of capital control varies within the components of the GDP. Eight out of sixteen of the components of GDP have significant post capital control impact. Specifically, the disaggregated components include rubber, palm oil, food, textile, construction, wholesale and retail, transport and finance. These empirical results seemed to suggest that capital control has the tendency to delivery positive effect for palm oil, construction, wholesale, transport and finance. These are indicated by the positive post capital control dummy. Capital control, however, may not induce improvements in rubber, food or textile. For wholesale, transport and finance, the improvements brought about by capital control range between 1.17% to 1.84%, which fairly minute. Construction recuperated about 8% post capital control. As for palm oil, improvement was about 22.46%. It is widely recognized that the electronics industries have significant contribution towards the Malaysian economic growth, in other words the export-orientation industries which provides a longstanding growth. We, however, were unable to detect the improvements in this regression since the data includes fabricated metal products and other machinery and equipments. It should also be noted that when capital control took place, balance of payments improved via fairly consistent exports but lower imports. Lower imports may have two consequences. If less consumption products were imported, then the economy may be on the right track. But, if lower import came from lower production of export goods, the economy may not regain its original position within a short period of time. This is because Malaysia does not produce original components or parts of our exported goods and that we are merely assemblers of our exported products. We depend heavily on imported components to enable us to make way for our exports.

Table 4.1: ARMA -Intervention Analysis Results

	Rubber	**Palm Oil**	**Other Agriculture, Livestock, Forestry and Fishing**	**Mining and Quarrying**
α (constant)	6.051689 (0.104170)*	7.050374 (0.109878)*	7.942463 (0.042700)	8.204883 (0.144387)*
ϕ (ar)	0.199061 (0.215910)	0.110600 (0.273118)	0.276602 (0.151281)***	0.935396 (0.006538)*
θ (ma)	-	0.434980 (0.258981)	-	-
δ (d1)	0.241774 (0.112404)**	-0.152688 (0.119132)	0.021576 (0.045957)	0.013188 (0.042596)
λ (d2)	**-0.244606 (0.117585)****	**0.224577 (0.123449)***	-0.055826 (0.048070)	-0.004451 (0.042258)
R^2	0.650473	0.578805	0.278469	0.918900
F-stats	24.19310 (0.000)*	17.86454 (0.000)*	5.017256 (0.004890)*	147.2963 (0.000)*
J-B	0.802457 (0.669497)	2.393830 (0.302125)	1.287469 (0.525327)	0.148686 (0.928353)
LM	0.584687 (0.562346)	0.555938 (0.460612)	0.975988 (0.386310)	0.954733 (0.394193)
ARCH	0.017934 (0.894138)	1.137138 (0.365292)	0.102418 (0.750613)	2.433941 (0.126612)
White's Hetroscedasticity	0.588017 (0.560157)	0.262028 (0.770800)	0.337777 (0.715369)	0.409869 (0.666493)
Ramsey Reset	1.253735 (0.297281)	0.891897 (0.350930)	1.512939 (0.233575)	1.659202 (0.204136)

Note: *, ** and *** indicates significant levels at 1%, 5% and 10%. The numbers in brackets are the standard errors. For the diagnostic tests, the numbers in brackets represents the p-values.

Table 4.1: ARMA-Intervention Analysis Results (continued)

	Food, Beverages and Tobacco	**Textile, Weaning Apparel and Leather Products**	**Wood and Paper Products, Printing and Publishing**	**Industrial Chemical, Product of Chemicals, Plastic, Rubber and Non-metallic Mineral Products**
α (constant)	19.89542 (0.873523)	6.727378 (0.260012)*	7.499156 (0.148442)*	8.865919 (0.555911)*
ϕ (ar)	0.998496 (0.010698)*	0.961488 (0.961488)*	0.949989 (0.016646)*	0.971999 (0.016533)*
θ (ma)	-0.968197 (0.030095)*	-0.959405 (0.026185)*	-0.962193 (0.029399)*	-0.470768 (0.165765)*
δ (d1)	-0.024255 (0.045379)	0.032936 (0.064678)	0.040273 (0.054325)	0.020238 (0.051634)
λ (d2)	**-0.093442 (0.051066)***	**-0.150913 (0.063728)****	-0.077209 (0.052997)	-0.060101 (0.057921)
R^2	0.913149	0.756283	0.872177	0.970221
F-stats	99.88223 (0.000)*	29.47959 (0.000)*	64.82167 (0.000)*	309.5128 (0.000)*
J-B	1.675547 (0.432673)	8.482699 (0.014388)**	0.372952 (0.829879)	1.330607 (0.514117)
LM	0.680290 (0.414773)	1.481092 (0.240916)	3.422800 (0.072300)**	1.288211 (0.288171)
ARCH	0.702196 (0.407026)	0.087121 (0.769397)	0.105030 (0.747564)	0.003548 (0.952802)
White's Hetroscedasticity	1.878505 (0.166053)	0.364968 (0.696506)	0.747353 (0.480116)	1.875485 (0.166512)
Ramsey Reset	0.968613 (0.389282)	1.673482 (0.201857)	1.831448 (0.159445)	10.01906 (0.00006)*

Note: *, ** and *** indicates significant levels at 1%, 5% and 10%. The numbers in brackets are the standard errors. For the diagnostic tests, the numbers in brackets represents the p-values.

Table 4.1: ARMA-Intervention Analysis Results (continued)

	Basic Metal Industries	**Fabricated Metal Products, Electronics, Machinery and Equipment**	**Electricity, Gas and Water**	**Construction**
α (constant)	8.755452 (0.106618)*	9.121278 (0.500934)	7.856376 (0.296987)*	-0.079288 (0.011910)*
ϕ (ar)	-	0.950676 (0.042563)*	0.957485 (0.017092)*	0.393180 (0.165432)**
θ (ma)	0.714205 (0.113045)*	0.286818 (0.166411)*	-	-0.977035 (0.034770)*
δ (d1)	-0.324032 (0.113566)*	-0.042642 (0.074355)	0.017023 (0.038365)	0.115539 (0.013462)*
λ (d2)	0.138374 (0.121179)	-0.102373 (0.074409)	-0.008311 (0.038544)	**0.080428 (0.014644)***
R^2	0.804935	0.953694	0.987772	0.438922
F-stats	55.02008 (0.000)*	195.6579 (0.000)*	767.6621 (0.000)*	7.236127 (0.000207)*
J-B	1.862025 (0.394154)	1.218378 (0.543792)	1.325575 (0.658790)	1.765365 (0.413672)
LM	1.620250 (0.212928)	1.849526 (0.171950)	1.167277 (0.322410)	0.919652 (0.408076)
ARCH	0.293344 (0.591017)	0.171063 (0.681378)	0.182537 (0.671494)	0.436147 (0.512870)
White's Hetroscedasticity	0.292449 (0.747977)	2.165998 (0.127895)	0.053228)	5.646541 (0.007020)*
Ramsey Reset	0.165690 (0.847952)	10.54789 (0.000248)*	2.071611 (0.140350)	1.492311 (0.229798)

Note: *, ** and *** indicates significant levels at 1%, 5% and 10%. The numbers in brackets are the standard errors. For the diagnostic tests, the numbers in brackets represents the p-values.

Table 4.1: ARMA-Intervention Analysis Results (continued)

	Wholesale and Retail Trade, Hotel and Restaurants	**Transport, Storage and Communication**	**Finance, Insurance, Real Estate and Business Services**	**Other Services**
α (constant)	9.407646 (0.407646)*	-0.004416 (0.007253)	0.003229 (0.290143)*	8.693255 (0.189631)*
ϕ (ar)	0.9695051 (0.006310)*	0.277804 (0.158202)***	0.503753 (0.133671)*	0.972738 (0.0076760.007)*
θ (ma)	-0.960352 (0.044199)*	-0.989949 (0.000489)*	-0.969323 (0.019770)*	-0.450536 (0.138774)*
δ (d1)	0.03786 (0.023311)*	0.033786 (0.008137)*	0.028690 (0.012306)**	0.000364 (0.017576)
λ (d2)	**0.018398 (0.025123)****	**0.018398 (0.009140)****	**0.011717 (0.013688)***	-0.055043 (0.017445)
R^2	0.379551	0.980480	0.983193	0.993147
F-stats	5.658566 (0.001173)*	477.1852 (0.000)*	555.7294 (0.000)*	1376.736 (0.000)
J-B	0.540276 (0.763274)	2.831331 (0.242764)	0.922267 (0.630569)	0.608364 (0.737726)
LM	1.293025 (0.287226)	1.293025 (0.287226)	0.128811 (0.879555)	1.123313 (0.336332)
ARCH	0.135057 (0.715183)	0.294726 (0.746468)	0.000599 (0.993864)	0.135057 (0.715183)
White's Hetroscedasticity	0.685388 (0.509714)	2.420385 (0.102126)	1.239792 (0.300600)	0.685388 (0.509714)
Ramsey Reset	1.378760 (0.264873)	1.503099 (0.236449)	1.181673 (0.318706)	19.48668 (0.00085)*

Note: *, ** and *** indicates significant levels at 1%, 5% and 10%. The numbers in brackets are the standard errors. For the diagnostic tests, the numbers in brackets represents the p-values.

CONCLUSION

The Malaysian 1998 experiment has succeeded in a way or another in stabilizing the economy. The economy has restored growth without returning to free (regulated) capital mobility but at a much slower rate. Despite the fear of the orthodox economist, Malaysia continued to attract foreign direct investment and at the same time maintain the volatility of the short term capital flow. This is mainly due to the fact that Malaysia had effectively removed the distortions in February 1999. Free flow of foreign direct investment, repatriation of interest, profits, dividends and capital continued to be guaranteed plus the fact that the current account remained generally convertible. Thus, there is no reason why investors should shun away from Malaysia.

Our regression analysis has shown that the implementation of capital controls had brought about improvements in some of the components of GDP in all three sectors. In the primary sector, palm oil has shown some positive improvements despite an opposite - scenario in rubber. The secondary sector which is the engine of growth to the Malaysian economy has mixed results with positive contributions to constructions but negligible impact on food and textile. Three components of services, namely wholesale, transport and finance may have gained from capital controls.

Gradual lifting of controls on capital movement promises greater inflow of foreign direct investment which in turn would escalate the share of manufacturing sector in the GDP. As at 2001, the manufacturing sector accounts for about 32.09% whilst the services sector account for 46.8% of GDP respectively. In order to achieve higher growth rate, the manufacturing sector should account for a larger percentage of the GDP rather than the services sector since presently our exports were the major contributor for growth. There are several reasons associated with this point. The manufacturing sector can best absorbed the benefits of economies scale and specialization compared to the services sector and the room for the manufacturing to expand further is enormous, given the enhancement and breakthroughs in technology.

However, it is imperative to note that capital control alone is inadequate to shield the economy from internal breakdown or external attack. Brazil, Argentina and Peru provide a vivid evidence of this notion. Most importantly, the economy must have a prudent set of regulations which is abide by the players, a robust banking system and financial system to enable itself to survive in a liberalized market.

Further Research and Recommendation

The impact and effectiveness of capital control policy can be examined from different perspectives. One possible area that can be studied is the impact of these controls on the sustainability of exchange rates, given the Malaysia had imposed exchange rate controls by pegging to the US dollar. A more indepth research should be done as to how long capital control should be continue and when is the right time to remove this restriction.

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