THE EFFECTIVENESS OF THE MALAYSIAN CAPITAL OUTFLOW CONTROLS OF 1998

Jarita Duasa

ABSTRACT

On September 1998, the Malaysian authorities imposed capital outflow controls after measures and reforms, which were put in place to curb the impact of the 1997 Asian financial crisis, did not bring back the signs of stability to financial markets and to the overall economy. The use of restrictions on capital flows was mostly aim to reduce financial instability and would give some breathing space for the country to place pro-growth policies and restructure the financial sector. The paper attempts to analyze the effectiveness of Malaysian capital outflow policy in bringing back stability of financial and key macro-economic variables of the economy from the crisis. For this purpose, the Generalised Autoregressive Conditional Heteroskedasticity (GARCH) model is employed. The results from stability test on each financial and economic series indicate that almost all series examined are stabilised by the imposition of the capital controls with at least complemented by one proxy of either 'social capital' or 'political stability'. In addition, the paper is assessing the effectiveness of the capital outflow controls by analyzing their ability to curtail the 'capital flight' while expansionary policies are implemented. The capital flight is estimated before and after the controls policy and it seems to drop after the controls were put in place as compared to its significant amount before the controls imposed. Trade misinvoicing, which is an alternative way where capital flight could occur, is also reducing after the controls are imposed. The results, therefore, suggest that the Malaysian capital outflow controls policy is an example of successful policy in facing the current challenge of the financial liberalization.

Key words: Asian financial crisis; Stability; GARCH model; Social Capital; Political Stability; Capital Flight.
JEL Classification: C5; F0; F3.

1. Introduction

The impact of the Asian financial crisis could still be felt by the crisis-hit countries, including Malaysia. Many literatures had come out with a list of causes contributed to the collapse of the "Asian Miracles" which took almost thirty years to build. One viewpoint focuses on the development of the global financial system. The evidence suggests that financial liberalization yields positive results in term of greater financial depth and increased efficiency in the allocation of world investment. But the potential dangers of liberalization are a loss of monetary control and the ability to spawn financial crisis.

In order to help protecting a country from the vulnerability of the financial system, a radical measure such as control on capital outflows could be used. This measure was

taken by Malaysian government in September 1998 to gain control over *ringgit* from speculators. Obviously, this radical measure was criticized by many observers, including Edwards(1989), Edwards(1999), Rogoff(1999) and Eichengreen(1999). The argument is the private sector will find ways of evading the controls by moving massive volumes of funds out of the country in a major crisis. The controls might also give a false sense of security, encouraging complacent and careless behaviour on behalf of policymakers and market participants. Nonetheless, the controls may scarce off investors who find them arbitrary and unpredictable.

As far as the Asian financial crisis is concerned, there is substantial amount of literatures discussing on the *causes* of the crisis. Those include Frankel(1998), Mishkin(1999), Poonpatpibul(2000), Kaplan(1999), Xie(2000), Baig(1999) and Lu(1999). Though there are also literatures discussing the *impact* of the crisis, such as Lee(1998) and Chomsisengphet(2000), literature specifically analyzing the effectiveness of Malaysian capital outflow controls is currently limited. Only few attempts formally evaluate the effectiveness of the Malaysian capital controls. One attempt is by Kaplan and Rodrik(2000) which try to analyze how Malaysia did compared to Korea or Thailand when the latter undergoing the IMF programs. The study finds that the Malaysian policies produced faster economic recovery, smaller declines in unemployment and real wages and more rapid turnaround in the stock market confidence. Another attempt is done by Johnson and Milton(2001) in which a test on Malaysian data was done, particularly on stock prices of Malaysian firms with strong political connections. The finding of the study has proven the existence of crony capitalism during the imposition of Malaysia capital outflow controls.

Since the issue of Malaysian capital outflow controls during the recent Asian financial crisis has become a great attention to economists and policy makers and its success is still in controversy, this paper aims to formally evaluate the effectiveness of the Malaysian capital controls. It will look at the impact of the controls on stability of not only the financial variables/series but also the key macro-economic variables/series. In addition, the effectiveness of the controls will also be assessed on its ability to curtail the capital flight while expansionary policies are implemented. The organisation of the paper is as follows. Section 2 describes the methodology and data employed for the stability test. The results of the test presented in Section 3. Section 4 estimates the capital flight from the controls policy to further assess the effectiveness of the capital outflow controls and Section 5 concludes.

2. Data and Methodology

a. The Methodology

The model of 'stability' that will be used in this paper is based on a framework, which has become standard in financial economics to analyze the impact of capital controls. It is known as the Generalised Autoregressive Conditional Heteroskedasticity (GARCH) framework, which was discussed in detail by Campbell, Lo and MacKinlay(1997). This framework was also being used by Edward(1999) to evaluate the effectiveness of Chile's

capital inflow controls in 1990s. However, the model of present study is different in term of the use of a dummy variable for the imposition of capital outflow controls, the bigger number of dependent variables which covers financial as well as economic variables and the additional independent variables incorporated in the model. The financial time-series/variables used are stock market index and interest rates and the macro-economic series/variables international reserves, exchange rates, inflation rate, private consumption and exports.

The methodology consists of estimating *two* equations jointly. In the first one, the dependent variable is the change or the log and change of the series[1]. The independent variables include, in principle, a range of variables that effect changes in these financial and economic variables, and they may include lagged values of dependent variables as well. The error term in this equation will be expected to have a mean *zero* and a *time-varying* variance due to the crisis. The first equation is known as the *mean equation*. In general, it will be

$$\Delta y_t = \theta + \Sigma \Phi_j . x_{t-j} + \eta_t \qquad \text{.....(1)}$$

where Δy is the change of the series, xs are the independent variables, η is the error term, is t time period and j is time lag. The second equation to be estimated is the *variance equation* itself. It is assumed that the variance (σ^2_t) depends on lagged squared values of the first equation's error term, on its own lagged values, and possibly on other variables. This second equation is known as the *conditional variance equation*, that is

$$\sigma^2_t = \alpha + \delta \eta^2_{t-1} + \beta \sigma^2_{t-1} + \Sigma \gamma_j . z_{t-j} \text{.....(2)}$$

where σ^2_t is variance of equation (1) and zs are other independent variables.

Before estimating equations (1) and (2), we have to inspect the data series to enable a suitable GARCH model to be developed for each series. For this purpose, a test of stationarity of the series is done. The stationarity or non-stationarity of the series could be tested using Augmented Dickey-Fuller (ADF) or Phillip-Perron (P-P) unit root test. Then, the *stationary series* are tested for *non-linearity* in order to assess the present of possibly some non-linear structure within the data. In this process, the BDS test is used as it is thought of as portmanteau test of non-linearity. The null hypothesis of this test is that the time series is independent and identically distributed (IID). This test is applied to the Autoregressive Moving Model (ARMA) model of the time series[2]. If we accept the null hypothesis, thus the ARMA model chosen is a good fit. Otherwise, there is some hidden, non-linear structure in the data and at this point, the GARCH model could be developed for the time-series data.

[1] The change or the log and change of the series are used to ensure that the series are stationary.

[2] The ARMA models for the series are developed by using general-to-specific approach, where all coefficients are significant at 1%, 5% or 10% levels.

In specific, the basic conditional variance equation or GARCH model (known as stability model) that will be estimated is:

$$\sigma^2_t = \alpha + \delta\eta^2_{t-1} + \beta\,\sigma^2_{t-1} + \gamma D_t \ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where D is a dummy variable, which takes *zero* value for 'pre-controls' period and *one* for 'post-controls' period. If the capital outflow controls have indeed succeeded in reducing financial and key macro-economic volatility, represented by σ^2, then coefficient $(\alpha + \gamma)$ should be lower for 'post-control' period than coefficient α for 'pre-controls' period. It means γ is expected to be negative and statistically significant if the capital outflow controls do contribute to stability of the series.

In order to obtain robust results, proxies of 'social capital' and 'political stability' are incorporated to the stability model (equation 3) as it is believed that the existence of social capital and political stability are also contributed to the stability of the financial and economic series within the period of study. Thus, equation (3) is rewritten as

$$\sigma^2_t = \alpha + \delta\eta^2_{t-1} + \beta\,\sigma^2_{t-1} + \gamma D_t + \lambda S_t + \theta P_t \ldots\ldots\ldots\ldots\ldots\ldots(4)$$

where S_t is a proxy of social capital and P_t is a proxy of political stability. The impact of the existence of social capital on the stability is reflected by parameter λ and when the controls are considered with social capital, parameters λ and $(\alpha + \gamma)$ are observed. On the other hand, the impact of political stability on the financial and economic stability could be observed by looking at parameter θ and when the controls are considered with political stability, parameters θ and $(\alpha + \gamma)$ are observed.

Proxies of social capital used in this study are 'social capital deficit' and 'voter turnout'[3]. Social capital deficit, which describes the effect of lacking social capital, will be based on the levels of crimes in the country, following the method used by National Commission on Civic Renewal in the United States. Voter turnout reflects degree of civic involvement in the society, which measured by the number of votes divided by the number of names on the voters' register, expressed as a percentage. Coefficient of '*crime rate*' variable is expected to be *positive* and statistically significant as the lacking of social capital might increase the volatility (reduce stability) of the series. On the other hand, coefficient of 'voter turnout' is expected to be *negative* and statistically significant.

As for political stability, the '*Political Stability Index'* (PSI) and the '*Transparency International Corruption Perception Index'* (TICPI) are used as indicators of political stability[4]. The PSI rates the propensity of a country to become politically unstable with damaging economic effects. High score of PSI indicates more stability and less risk of the country. TICPI in specific year, on the other hand, ranks several countries in terms of

[3] See Knack and Keefer(1997), La Porta et al.(1997), Helliwell(1996), Rose(1999), Krishna and Uphoff(1999), Brehm and Rahn(1997), and Grootaert(1999) for proxies used for social capital.

[4] Details on how to measure political stability/instability could be found in Cukierman et al.(1992), Londregan and Poole(1990), Londregan and Poole(1991), Alesina et al.(1996), Hibbs(1973), Venieris and Gupta(1986), Barro(1991), and Alesina and Perotti(1996).

degree in which corruption is perceived to exist among public officials and politicians. It is composite index, drawing on different polls and surveys from independent institutions carried out among business people and country analysts, including survey of residents, both local and expatriate. The index ranges between 10, highly clean, and 0, highly corrupt country. Both coefficients for PSI and TICPI are expected to be *negative* and significant as we assume political stability will reduce the variance/volatility of the financial and economic series.

b. The Data

The analysis has been conducted on the financial data of stock market (Kuala Lumpur Composite Index) and interest rates (3-month interbank rates), as well as the macro-economic data of exchange rates (RM/$US), international reserves, private consumption, inflation rates (Consumer Price Index) and exports. Both financial data/variables involve daily data from 14th May 1993 until 14th May 2002. On the other hand, the economic data/variables involve either daily, monthly or quarterly data depending on the availability of each data. The data covers from 1993 until 2002. The main sources of the data are from *Datastream, IMF Financial Statistics, Bank Negara Malaysia(BNM) Statistical Bulletin* and *Department of Statistics, Malaysia.*

Data on Political Stability Index (PSI) are collected from the *World Bank Policy Research Working Paper* on Governance indicators and data on TICPI are from *Transparency International*, which prepared using several sources, including the World Competitiveness Report of Institute for Management Development, the World Bank and Political and Economic Risk Consultancy Ltd. As for social capital, data on 'level of crime', representing social capital deficit, are obtained from the *Royal Malaysian Police Department* and 'vote turnout' data are from the website of *International Institute for Democracy and Electoral Assistance (IDEA).*

3. The Results

As mentioned in the preceding section, at the beginning, the data series are inspected based on the ADF and P-P unit root tests to examine their stationarity. Both tests show that all the original time series are non-stationary as the null hypotheses that the series are non-stationary are not rejected at 5% level of significance. When the original series or the raw data are transformed into differenced once or log and differenced once and the unit root tests applied, the transformed series are now stationary as the null hypotheses are rejected at 5% level of significance. Thus, obviously the original series are integrated of order 1, denoted by I(1) or unit root. Table 1 summarizes the results of the unit root tests for both the original and transformed series.

Using the transformed series, the ARMA model is developed for each series in order to attempt possible fit model for the data. This is done by using general-to-specific approach. The ARMA model for each series is displayed on Table 2. However, most of the 'goodness fit' (R-squared) of the models is very low and some of their residuals face normality failures, serial correlation, ARCH effect or heteroskedasticity problem.

Moreover, the BDS test statistics on most ARMA residuals fail to accept the null hypothesis of IID. The departures from IID series identified in the ARMA models may well be attributable to the present of autoregressive conditional heteroskedasticity in series innovations which probably due to the volatility of the series during the financial crisis. For this reason, GARCH model is developed for the transformed series as it is thought as a suitable model to test the volatility or stability of the series. The GARCH model for each series developed is also displayed on Table 2.

Table 1: Unit root tests on original and transformed series

Financial/Economic Variable	**Original Series**			**Transformed Series**		
	ADF test statistic	***P-P test statistic***	***5% Critical Value***	***ADF test statistic***	***P-P test statistic***	***5% Critical Value***
Stock Market (KLCI)	-2.26	-2.29	-3.41	-20.99	-46.06	-1.94
Interest Rates	-1.29	-1.50	-3.41	-27.00	-48.98	-1.94
Exports	-2.25	-1.92	-3.53	-4.14	-4.74	-1.95
Inflation (CPI)	-2.16	-2.28	-3.45	-2.60	-6.61	-1.94
Private Consumption	-2.81	-2.86	-3.53	-5.04	-6.72	-1.95
International Reserves	-2.22	-1.79	-3.45	-3.51	-7.09	-1.94
Exchange Rates	-1.89	-1.84	-3.41	-23.01	-48.70	-1.94

NOTE: Transformed series are series which either differenced once of the original series, X_t-X_{t-1}, or differenced once of log of original series, log X_t-log X_{t-1}.

The results of regression on stability model (GARCH model) of each series, with a dummy, social capital or/and political stability variables, are displayed on Table 3 until Table 9.

Based on the basic regression (1) on the second column of each table (Table 3 to Table 9), the capital outflow controls imposed by the Malaysian authority on September 1998 did contribute to stability of some financial and economic series. The controls reduce volatility in *interest rates, inflation rates, private consumption, international reserves* and *exchange rates*. This is shown by negative sign of the dummy variable in each of these series and the coefficient is statistically significant at 1%, 5% and 10% levels. As proxies of social capital are incorporated into the regression equation, the variables of *social capital* are significant with expected sign in the series of *stock market, interest rates* and *inflation*. But in most series, proxies of *political stability* appear to be highly significant with expected sign, such as in the series of *stock market, interest rates, exports, private consumption, international reserves and exchange rates.* In general, almost all series of financial and economic variables are stabilized by the capital outflow controls with at least complemented by one proxy of either social capital or political stability. In particular, for the financial series of stock market and interest rates, both factors of social capital and political stability are proven significant in supporting the controls policy of stabilization.

Table 2: ARMA and GARCH models for the financial and economic series

Series/Variable	ARMA model	GARCH model (Variance Equation)
Stock Market (KLCI)	$KL_t = \alpha_1 KL_{t-1} + \alpha_2 KL_{t-2} + \alpha_3 KL_{t-3} + \alpha_4 KL_{t-4} + \alpha_5 KL_{t-5} + \beta_1 u_t + \beta_2 u_{t-1} + \beta_3 u_{t-2} + \beta_4 u_{t-3} + \beta_5 u_{t-5}$	*GARCH-M(2,0):* $h_t^2 = \beta_0 + \beta_1 u_{t-1}^2 + \beta_2 u_{t-2}^2 + \beta_3 D_t$
Interest Rates	$R_t = \alpha_1 R_{t-2} + \alpha_2 R_{t-4} + \alpha_3 R_{t-5} + \beta_1 u_t + \beta_2 u_{t-3} + \beta_3 u_{t-4} + \beta_4 u_{t-5}$	*GARCH-M(1,1):* $h_t^2 = \beta_0 + \beta_1 u_{t-1}^2 + \beta_2 h_{t-1}^2 + \beta_3 D_t$
Exports	$X_t = \alpha_1 X_{t-4}$	*GARCH-M(1,0):* $h_t^2 = \beta_0 + \beta_1 u_{t-1}^2 + \beta_2 D_t$
Inflation (CPI)	$PI_t = \alpha_1 PI_{t-2} + \alpha_2 PI_{t-5} + \beta_1 u_t + \beta_2 u_{t-5}$	*GARCH-M(1,1):* $h_t^2 = \beta_0 + \beta_1 u_{t-1}^2 + \beta_2 h_{t-1}^2 + \beta_3 D_t$
Private Consumption	$CS_t = \alpha_1 CS_{t-4} + \beta_1 u_t + \beta_2 u_{t-4}$	*GARCH-M(1,1):* $h_t^2 = \beta_0 + \beta_1 u_{t-1}^2 + \beta_2 h_{t-1}^2 + \beta_3 D_t$
International Reserves	$IN_t = \alpha_1 IN_{t-2} + \alpha_2 IN_{t-3} + \alpha_3 IN_{t-4} + \alpha_4 IN_{t-5} + \beta_1 u_t + \beta_2 u_{t-1} + \beta_3 u_{t-2} + \beta_4 u_{t-3} + \beta_5 u_{t-4} + \beta_6 u_{t-5}$	*GARCH-M(1,0):* $h_t^2 = \beta_0 + \beta_1 u_{t-1}^2 + \beta_2 D_t$
Exchange Rates	$X_t = \alpha_1 X_{t-1} + \alpha_2 X_{t-2} + \alpha_3 X_{t-3} + \alpha_4 X_{t-4} + \beta_1 u_t + \beta_2 u_{t-1} + \beta_3 u_{t-2} + \beta_4 u_{t-3} + \beta_5 u_{t-4}$	*GARCH-M(1,0):* $h_t^2 = \beta_0 + \beta_1 u_{t-1}^2 + \beta_2 D_t$

Table 3: Stability Equation:Determinants of Volatility/Stability in Stock Market (KLCI)

	Basic	Social Capital		Political Stability		Social Capital and Political Stability			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Constant	0.0000999 (23.52309)***	0.0000147 (1.614480)	-0.001237 (-283.3819)***	0.000202 (1.90734)*	-0.001120 (-2.718728)***	-0.001284 (-11.02346)***	0.000563 (73.66785)***	-0.001305 (-137.7209)***	-0.003269 (-769.2951)***
ARCH term (t-1)	0.361050 (10.59457)***	0.183688 (6.731515)***	0.144177 (7.364009)***	0.357576 (10.51983)***	0.383979 (11.00505)***	0.144127 (7.330696)***	0.160677 (7.349093)***	0.147951 (6.501523)***	0.145228 (7.490233)***
ARCH term (t-2)	0.451294 (12.56871)***	0.343362 (13.05024)***	0.159708 (10.69583)***	0.458406 (12.64007)***	0.402768 (11.82364)***	0.159388 (10.68245)***	0.180954 (11.64023)***	0.290388 (11.69724)***	0.148833 (10.82422)***
Dummy	0.000000741 (0.129812)	-0.0000613 (-10.15260)***	-0.000107 (-19.39435)***	-0.00000389 (-0.515610)	0.000180 (2.862102)***	-0.000104 (-11.98387)***	-0.000107 (-22.97373)***	0.000126 (21.82931)***	-0.000120 (21.92055)***
Crime rate (Social Capital Deficit)		0.0000000012 (15.96577)***					0.00000000186 (33.95547)***	1.23E-09 (19.58508)***	
Voter turnout (Social Capital)			0.0000212 (3.89E+101)***			0.0000213 (4.00E+101)***			6.23E-05 (3.22E+102)***
Corruption Perception Index (TICPI)				-0.0000195 (-0.961031)		0.00000692 (0.313988)	-0.000114 (-2.2E+101)***		
Political Stability Index (PSI)					0.0000174 (2.960956)***			0.0000190 (1.02E+102)***	-1.31E-05 (-1.4E+101)***
R^2	-0.050512	-0.003057	0.001034	-0.050963	-0.046893	0.001003	-0.006833	-0.006892	0.003419
S.E.E.	0.855097	0.816470	0.813140	0.855465	0.852151	0.813165	0.819544	0.819592	0.811199

Notes: (1) The parentheses represent the z-values
(2) n/a represents unavailable statistics
(3) ***denotes statistically significant at the 1% level
** denotes statistically significant at the 5% level
* denotes statistically significant at the 10% level

Table 4: Stability Equation: Determinants of Volatility/Stability in Interest Rates

	Basic	Social Capital		Political Stability		Social Capital and Political Stability			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Constant	0.000547 (31.10184)***	0.003427 (567.9978)***	0.011741 (162.4416)***	0.000297 (3.67E+101)***	0.001783 (36.98983)***	0.011354 (10.87599)***	0.027177 (19.45142)***	0.020662 (124.4600)***	0.015110 (7.29700)***
ARCH term	0.276540 (37.78024)***	0.163994 (53.63554)***	0.222784 (47.28083)***	0.207560 (48.44834)***	0.215563 (44.72080)***	0.218295 (49.25638)***	0.153230 (47.59979)***	0.159314 (41.10548)***	0.201537 (40.95648)***
GARCH term	0.780822 (259.3066)***	0.604721 (137.0891)***	0.700249 (179.6560)***	0.789859 (1512.026)***	0.803710 (247.0379)***	0.665107 (141.6760)***	0.600434 (48.25960)***	0.601926 (58.45348)***	0.667602 (103.9300)***
Dummy	-0.000435 (-25.50473)***	-0.004107 (-1.1E+102)***	-0.002769 (-39.54603)***	-0.001881 (-3.3E+101)***	-0.0001020 (-22.16510)***	-0.003245 (-36.37029)***	-0.003748 (-1.0E+101)***	-0.005525 (-2.1E+100)***	-0.003708 (-31.56444)***
Crime rate (Social Capital Deficit)		1.10E-08 (70.31816)***					6.09E-08 (24.70218)***	9.43E-08 (1.07E+101)***	
Voter turnout (Social Capital)			0.000121 (1.1E+101)***			-0.0000880 (-6.064469)***			-0.000128 (-4.439770)***
Corruption Perception Index (TICPI)				0.000331 (1.41E+101)***		-0.000225 (-1.2E+100)***	-0.005544 (-19.25168)***		
Political Stability Index (PSI)					-9.35E-06 (-8.77E+99)***			-0.000346 (-3.3E+101)***	-1.64E-05 (-1.78E+99)***
R^2	0.057991	0.056874	0.068812	0.037803	0.072261	0.038646	0.056853	0.056873	0.053552
S.E.E.	65.78455	65.86255	65.02883	67.19433	64.78800	67.13549	65.86398	65.86262	66.09454

Notes: (1) The parentheses represent the z-values
(2) n/a represents unavailable statistics
(3) ***denotes statistically significant at the 1% level
** denotes statistically significant at the 5% level
* denotes statistically significant at the 10% level

Table 5: Stability Equation: Determinants of Volatility/Stability in Exports

	Basic	Social Capital		Political Stability		Social Capital and Political Stability			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Constant	0.002025 (2.376430)**	-0.0000181 (-0.002613)	0.045265 (0.228469)	0.041321 (43.79828)	0.023685 (26.18425)***	0.045875 (50.50168)***	0.034768 (8.475551)***	0.020035 (3.449784)***	0.019715 (0.083175)
ARCH term	0.340412 (0.679657)	0.341869 (0.631099)	0.298670 (0.728895)	0.377420 (0.661537)	0.254312 (0.747253)	0.426551 (0.658960)	0.176476 (0.565733)	0.173704 (0.571048)	0.284550 (0.741992)
Dummy	0.001213 (0.441492)	-0.000174 (-0.046170)	-0.000543 (-0.067423)	0.000313 (0.127609)	-0.002309 (-1.017550)	0.000319 (0.117079)	-0.001452 (-0.503241)	-0.003618 (-1.067843)	-0.002358 (-0.109607)
Crime rate (Social Capital Deficit)		2.02E-08 (0.352669)					1.1E-08 (0.309806)	2.61E-08 (0.533060)	
Voter turnout (Social Capital)			-0.000602 (-0.218234)			-0.000147 (-6.0E+100)***			4.68E-05 (0.020392)
Corruption Perception Index (TICPI)				-0.007593 (-9.9E+100)***		-0.006471 (-5.4E+100)***	-0.006458 (-2.7E+101)***		
Political Stability Index (PSI)					-0.000305 (-3.6E+100)***			-0.000287 (-3.0E+100)***	-0.000296 (-0.161847)
R^2	0.136976	0.140002	0.147992	0.140657	0.142868	0.142833	0.146537	0.142332	0.141263
S.E.E.	0.133513	0.133045	0.131809	0.132944	0.132602	0.132607	0.132034	0.132685	0.132850

Notes: (1) The parentheses represent the z-values
(2) n/a represents unavailable statistics
(3) ***denotes statistically significant at the 1% level
** denotes statistically significant at the 5% level
* denotes statistically significant at the 10% level

Table 6: Stability Equation: Determinants of Volatility/Stability in Inflation

	Basic	Social Capital		Political Stability		Social Capital and Political Stability			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Constant	0.076824 (9.321152)***	0.073744 (20.95653)***	0.179381 (36.98131)***	0.045049 (7.488469)***	0.229377 (0.199426)	0.205636 (n/a)	-0.009172 (-0.083061)	0.090675 (0.374419)	0.246369 (0.143087)
ARCH term	-0.045698 (-3.299066)***	-0.086686 (-6.785952)***	-0.031801 (-3.882152)***	-0.028515 (-1.074877)	-0.077080 (-6.87E+99)***	-0.053742 (n/a)	-0.024583 (-0.433855)	-0.037238 (-0.689957)	-0.054799 (-2.06E+98)***
GARCH term	0.703224 (10.03923)***	0.973126 (3.25E+101)***	0.765700 (15.55481)***	0.682583 (12.44311)***	0.536356 (2.547389)**	0.656884 (n/a)	0.529857 (2.311661)**	0.502878 (1.035497)	0.557667 (2.708400)***
Dummy	-0.054607 (-2.8E+100)***	-0.011013 (-3.037280)***	-0.032488 (-1.5E+100)***	-0.055608 (-6.6E+99)***	-0.146621 (-0.697563)	-0.076400 (n/a)	-0.080411 (-1.035194)	-0.076633 (-0.596331)	-0.146268 (-0.675383)
Crime rate (Social Capital Deficit)		-3.48E-07 (-9.5E+100)***					-8.68E-07 (-1.883620)*	-8.14E-07 (-1.281286)	
Voter turnout (Social Capital)			-0.001929 (-2.6E+100)***			-0.001120 (n/a)			-0.000512 (-0.024419)
Corruption Perception Index (TICPI)				0.006031 (2.75E+99)***		-0.005884 (n/a)	0.054413 (2.05E+100)***		
Political Stability Index (PSI)					-0.000732 (-0.046739)			0.002792 (8.4E+99)***	-0.000454 (-0.028568)
R^2	0.162345	0.017039	0.174805	0.132224	0.127467	0.120520	-0.031109	-0.071602	-0.112474
S.E.E.	19.95496	23.41650	19.65812	20.67250	20.78583	20.95133	24.56350	25.52813	26.50179

Notes: (1) The parentheses represent the z-values
(2) n/a represents unavailable statistics
(3) ***denotes statistically significant at the 1% level
** denotes statistically significant at the 5% level
* denotes statistically significant at the 10% level

Table 7: Stability Equation: Determinants of Volatility/Stability in Private Consumption

	Basic	Social Capital		Political Stability		Social Capital and Political Stability			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Constant	0.001201 (4.792795)***	0.001790 (1.952088)*	0.001798 (0.064479)	0.001515 (0.084350)	0.001516 (n/a)	0.001319 (0.026592)	0.001790 (0.225654)	0.000957 (0.195994)	0.001608 (0.087166)
ARCH term	-0.123468 (-0.699188)	0.150000 (0.626032)	-0.357432 (-1.487206)	-0.268703 (-2.3E+100)***	-0.284189 (n/a)	-0.236629 (-1.029461)	0.150000 (0.598079)	-0.027459 (-0.081479)	-0.209290 (-0.872679)
GARCH term	0.423546 (1.089487)	0.600000 (1.144483)	0.814700 (2.406490)**	0.573928 (0.859309)	0.607011 (n/a)	0.613884 (0.652185)	0.600000 (0.929423)	0.582143 (0.179103)	0.900755 (1.206618)
Dummy	-0.000742 (-5.87E+99)***	-2.79E-07 (-0.000394)	-0.000528 (-0.442860)	-0.000508 (-0.346492)	-0.000511 (n/a)	-0.000632 (-0.378728)	-3.43E-07 (-0.000461)	-0.000480 (-0.110861)	-0.000327 (-0.411918)
Crime rate (Social Capital Deficit)		-1.08E-08 (-1.4E+100)***					-1.07E-08 (-8.78E+99)***	2.06E-10 (0.007104)	
Voter turnout (Social Capital)			-0.0000105 (0.027154)			-0.0000103 (-0.014600)			-1.12E-05 (-0.042685)
Corruption Perception Index (TICPI)				-0.0000459 (-0.013809)		0.000124 (8.66E+99)***	-3.88E-06 (-0.002327)		
Political Stability Index (PSI)					-3.93E-06 (n/a)			-1.13E-06 (-0.081958)	-3.94E-06 (-4.82E+99)***
R^2	0.468594	0.456252	0.533627	0.508889	0.525572	0.519128	0.456240	0.472194	0.567135
S.E.E.	0.060008	0.061402	0.052664	0.055458	0.053574	0.054302	0.061403	0.059602	0.048881

Notes: (1) The parentheses represent the z-values
(2) n/a represents unavailable statistics
(3) ***denotes statistically significant at the 1% level
** denotes statistically significant at the 5% level
* denotes statistically significant at the 10% level

Table 8: Stability Equation: Determinants of Volatility/Stability in International Reserves

	Basic	Social Capital		Political Stability		Social Capital and Political Stability			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Constant	0.002813 (10.36932)***	0.002951 (4.013412)***	0.003000 (0.057814)	0.002946 (0.297960)	0.002934 (0.143721)	0.002894 (0.055090)	0.002529 (3.709879)***	-0.010690 (-10.67745)***	0.002886 (0.047466)
ARCH term	-0.024345 (-0.170326)	-0.029684 (-0.186353)	-0.019019 (-1.94E+99)***	-0.015835 (-2.41E+99)***	-0.019656 (-2.27E+99)***	-0.019408 (-1.90E+99)***	0.159103 (0.753611)	0.169956 (0.804510)	-0.024588 (-4.54E+99)***
Dummy	-0.002137 (-7.210333)***	-0.002768 (-8.254270)***	-0.002349 (-1.067134)	-0.002175 (-2.995907)***	-0.002354 (-0.758273)	-0.002346 (-1.034154)	-0.002454 (-7.542233)***	-0.000265 (-0.826604)	-0.002443 (-0.773782)
Crime rate (Social Capital Deficit)		3.50E-09 (0.750151)					4.67E-09 (1.069898)	2.87E-09 (0.445513)	
Voter turnout (Social Capital)			8.4E-07 (0.001173)			-6.68E-07 (-0.000920)			-2.35E-06 (-0.002120)
Corruption Perception Index (TICPI)				3.18E-06 (0.001702)		0.0000419 (0.024272)	-0.0000105 (-1.08E+99)***		
Political Stability Index (PSI)					2.28E-06 (0.007811)			0.000190 (3.17E+101)	7.13E-06 (0.016380)
R^2	0.246096	0.173177	0.143844	0.141540	0.144062	0.143913	0.051252	0.037797	0.145980
S.E.E.	0.231321	0.253695	0.262695	0.263402	0.262628	0.262674	0.291105	0.295234	0.262040

Notes: (1) The parentheses represent the z-values
(2) n/a represents unavailable statistics
(3) ***denotes statistically significant at the 1% level
** denotes statistically significant at the 5% level
• denotes statistically significant at the 10% level

Table 9: Stability Equation: Determinants of Volatility/Stability in Exchange Rates

	Basic	Social Capital		Political Stability		Social Capital and Political Stability			
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Constant	0.000006 (5.92E102)***	0.0000543 (193.4855)***	0.0000602 (1.661735)	0.0000602 (1.60E+104)***	6.02E-05 (5.997219)***	0.0000603 (1.651759)*	0.0000614 (n/a)	5.44E-05 (n/a)	5.84E-05 (1.37E+102)***
ARCH term	0.171527 (17.90491)***	0.171429 (22.32161)***	0.171429 (17.77322)***	0.171432 (17.95481)***	0.171429 (17.77214)***	0.171429 (17.61203)***	0.171429 (n/a)	0.171429 (n/a)	0.171429 (19.20821)***
Dummy	-0.00006 (-586.9040)***	-0.0000425 (-135.9676)***	-0.0000531 (-7.4E+100)***	-0.0000599 (-1313.938)***	-5.34E-05 (-7.2E+100)***	-0.0000531 (-7.2E+100)***	-0.0000437 (n/a)	-4.35E-05 (n/a)	-5.48E-05 (-123.5681)***
Crime rate (Social Capital Deficit)		-6.63E-11 (-1.9E+101)***					1.95E-10 (n/a)	-1.02E-10 (n/a)	
Voter turnout (Social Capital)			-2.22E-09 (-0.004402)			-1.49E-09 (-0.002636)			-2.64E-08 (-1.592728)
Corruption Perception Index (TICPI)				-4.98E-08 (-5.529171)***		-3.07E-08 (-0.0012146)	-0.00000607 (n/a)		
Political Stability Index (PSI)					-1.7E-09 (-0.011892)			1.07E-07 (n/a)	-2.40E-08 (-1.607001)
R^2	0.012903	0.012994	0.012842	0.012903	0.012845	0.012844	0.012955	0.012940	0.012972
S.E.E.	0.141124	0.141111	0.141132	0.141124	0.141132	0.141132	0.141116	0.141119	0.141114

Notes: (1) The parentheses represent the z-values
(2) n/a represents unavailable statistics
(3) ***denotes statistically significant at the 1% level
** denotes statistically significant at the 5% level
* denotes statistically significant at the 10% level

4. Capital Flights

The effectiveness of the capital outflow controls is not only assessed by their ability to reduce volatility of the financial and economic series, but also by their ability to curtail the 'capital flight' while expansionary policies are implemented. Two measures are identified from the Malaysian capital outflow controls policy that aim to contain the capital flight by residents and non-residents. One, when approval was required for non-residents to convert ringgit held in external accounts into foreign currency, except for the purchase of ringgit asset. Two, a twelve-month waiting period imposed for non-residents to convert ringgit proceeds from the sale of Malaysian securities held in external accounts (BNM Annual Report, 1998).

However, the opponents of the capital outflow controls argue that the private sector finds ways of evading the controls and moving massive amount of funds out of the country when facing the prospect of a crisis. Studies by Edwards(1989), Edwards and Santaella(1993) and Cuddington(1986) found that, in most cases, where controls on outflows were used as a preventive measure, there was a significant increase in capital flight after the controls had been put in place. Nonetheless, there is also evidence suggesting that controls on capital outflows may signal the introduction (continuance) of poorly designed economic policy and a deterioration of economic fundamentals which in turn inducing a capital outflow. How far this is true in case of Malaysian capital outflow controls?. Thus, this section will formally estimate the level of capital flight before and after the controls were imposed.

It is often argued that even if the controls are comprehensive and capital flight through the capital account could be stopped, an alternative conduit of capital flight could be existed through underinvoicing of exports or overinvoicing of imports on the current account. Therefore, while estimating capital flight, we will also estimate the misinvoicing of exports and imports in order to investigate whether there is an indication of capital controls circumvention through this channel of trade misinvoicing.

Boyce and Ndikumana(2000) defined capital flight(KF) as a residual difference between total capital inflows and recorded foreign-exchange outflows. Capital inflows consist of net external borrowing plus net foreign direct investment. Recorded foreign-exchange outflows comprise the current account deficit and net additions to reserves and related items. This residual approach was introduced in pioneering studies by the World Bank(1985) and Erbe(1985) and the KF in a given year t for a country is computed as:

$$KF_t = \Delta DEBT_t + DFI_t - (CA_t + \Delta RES_t) \qquad (5)$$

where ΔDEBT is the change in total external debt outstanding, DFI is net direct foreign investment, CA is the current account deficit and ΔRES is net additions to the stock of foreign reserves. Following this approach, the capital flights are estimated for Malaysia from 1990 to 2002. Data on DEBT are obtained from IMF's International Financial Statistics Yearbooks and BNM Monthly Statistical Bulletin of various issues and data on

other variables are collected from various issues of IMF's Balance of Payments Statistics Yearbook.

Trade misinvoicing can be estimated by comparing the country's export and import data to those of its trading partners. Assuming that the data from industrial countries are relatively accurate, using the IMF's Direction of Trade Statistics Yearbooks, we interpret the discrepancy between these data and the data from their Malaysian trading partner as evidence of misinvoicing. Thus for Malaysia in year t, *export discrepancies* with the industrialized countries (DXIC) are computed as:

$$DXIC_t = PXIC_t - (XIC_t * CIF_t)$$

where PXIC is the value of the industrialized countries' imports from Malaysia as reported by the industrialized trading partners, XIC is Malaysian exports to industrialized countries as reported by Malaysia, and CIF is the c.i.f/f.o.b factor, representing the costs of freight and insurance. A positive sign of DXIC indicates export underinvoicing. On the other hand, *import discrepancies* with the industrialized countries (DMIC) are computed as:

$$DMIC_t = MIC_t - (PMIC_t * CIF_t)$$

where MIC is Malaysian imports from industrialized countries as reported by Malaysia and PMIC is the industrialized countries' exports to Malaysia as reported by the industrialized trading partners. A positive sign of DMIC indicates net overinvoicing of imports and a negative sign indicates net underinvoicing. The total trade misinvoicing could be obtained by multiplying these discrepancies by the inverse of the shares of industrialized countries in the Malaysia's exports (ICXS) and imports (ICMS) and sum up as follows:

$$MISINV_t = \frac{DXIC_t}{ICXS_t} + \frac{DMIC_t}{ICMS_t} \qquad (6)$$

Table 10 displays the computation of capital flight and trade misinvoicing for Malaysia. Years before/and 1998 are considered as 'pre-controls' period and years after 1998 are as 'post-controls' period. The third row of the table presents the estimates of capital flight in million US dollar. A year after the outbreak of the crisis in 1997, the capital flight amounted to US$25,381 million from US$18,730. But when the capital controls imposed in 1998, it dropped in substantial amount in 1999 and 2000 before it increased again in 2001 and 2002. The increase of the capital flight in these later years, however, is not exceeding its amount in 1998. As for the trade misinvoicing, its amount also reduced after the controls were imposed from US$13,287 million by end of 1998 to US$13,150 million by the end of 1999. Though in 2000 it increased to US$19,906 million, the amount reduced again on the next following years. Notice the significant of trade misinvoicing in relation to the KF estimates, an adjustment is made on KF calculation to avoid biasness[5]. In this case, KF is adjusted for trade misinvoicing by adding the trade misinvoicing to the initial estimate of KF in equation (5). The adjusted KF is therefore is:

[5] The estimates might be bias because, in practice, the official balance of payments data on exports and imports (trade statistics) are often inaccurate due to trade misinvoicing. Exporter may understate the value of their export revenues in order to retain abroad the difference between the true value and the declared value. On the other side, overinvoicing imports allow importers to obtain extra foreign exchange, which can be transferred abroad and underinvoicing imports allows importers to evade customs duties and restrictions. In other words, export underinvoicing and import overinvoicing will overstate the true account deficit of the balance of payments and import underinvoicing will understate the true deficit. If the true current

$$ADJKF_t = KF_t + MISINV_t \qquad (7)$$

The estimates of adjusted KF is shown in the fifth row of Table 10. The significant amount of adjusted KF was evidenced immediately after Malaysia was hit by the crisis as it amounted to US$50,222 million by the end of 1998. A year after the controls implemented, it reduced to US$32,138 million by the end of 1999. It was increasing from 2000 onwards but the increase is very modest and again it never exceeds the amount before the controls put in place. Therefore, the results clearly suggest that the capital outflow controls used by the Malaysian authority in the recent Asian financial crisis do not increase the capital flight as most economists expected from the experiences of other previous crisis-hit countries. Moreover, the argument that an alternative channel for capital flight could be developed through trade misinvoicing seems faded in the case of Malaysian capital controls as the results obviously show that a parallel market did not develop from the policy imposed.

5. Conclusion

This paper attempts to analyze the effectiveness of 1998 capital outflow controls policy of the Malaysian government by looking at its ability to stabilize the financial and macro-economic series during the crisis. The stability model developed for this analysis is based on the GARCH model, in which two equations are jointly estimated, namely mean equation and conditional variance equation for each series. Using ARMA model for the mean equation, the conditional variance equation is estimated for each series and the impact of the capital outflow controls on stability is observed by looking at the coefficient of a dummy variable, that is, the proxy of the capital controls. In addition, proxies of social capital and political stability are included as additional regressors to the variance equation. The results show that stability of almost all financial and economic series is not only significantly determined by the imposition of the capital outflow controls but also by at least one proxy of either social capital or political stability. Thus, the existence of social capital and political stability in the country is largely contributed to the successfulness of the capital controls policy of the Malaysian government in order to bring back the stability in financial market and the economy from the negative impacts of the Asian financial crisis. Moreover, the amount of capital flight and trade misinvoicing are estimated before and after the controls period. The decrease in these flows after the imposition of the controls clearly proves that the Malaysian capital controls is effective in reducing capital outflows and also the alternative channel of the outflows.

---

account deficit is overstated, the KF estimate will be too low and if the true current account deficit is understated, the KF estimate will be too high.

Table 10: Capital Flight and Trade Misinvoicing (1990-2002)

	Pre-controls period									*Post-controls period*			
Year	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
KF: Capital Flight (US$mil.)	2,667	942	10,354	11,887	-12,991	1,475	9,994	18,730	25,381	7,711	4,176	13,037	14,481
Total Trade Misinvoicing (US$mil.)	12,162	14,571	16,328	16,945	22,003	28,896	35,685	29,348	24,841	24,427	38,498	34,113	34,228
ADJKF[a]: Capital Flight (adjusted for trade misinvoicing) (US$mil.)	14,829	15,513	26,682	28,832	9,012	30,371	45,679	48,078	50,222	32,138	42,674	47,150	48,709

Sources:
Author's computation using data from:
*****IMF's Balance of Payments Statistics Yearbook (various issues)
*****IMF's Direction of Trade Statistics Yearbook (various issues)
*****IMF's International Financial Statistics Yearbook (various issues)
*****BNM Monthly Statistical Bulletin (various issues)
Note:
a. See text for the method of calculation of adjusted KF.

References

Alesina, A. and Perotti, R. (1996). 'Income Distribution, Political Instability and Investment'. *European Economic Review*. 40. pp. 1203-1228.

Alesina, A.; Ozler, S.; Roubini, N. and Swagel, P. (1996). 'Political Instability and Economic Growth'. *Journal of Economic Growth* No. 2. pp. 189-213.

Baig, Timur.(1999). *Essays on Financial Crises in Emerging Markets: Role of Capital Inflow, Financial Intermediaries and the Dynamics of Contagion*. PhD Thesis. University of Illinois at Urbana-Champaign.

Boyce, J.K. and Ndikumana, L. (2000). 'Is Africa a Net Creditor? Estimates of Capital Flight from Severely Indebted Sub-Saharan African countries, 1970-1996'. *Political Economy Research Institute (PERI) Working Paper* No. 5. University of Massachusetts, Amherst.

Bank Negara Malaysia (BNM). *BNM Annual Report, 1998*. Kuala Lumpur, Malaysia.

Bank Negara Malaysia (BNM). *BNM Monthly Statistical Bulletin*. Kuala Lumpur, Malaysia. (various issues)

Barro, Robert J. (1991). 'Economic Growth in a Cross-section of Countries'. *Quarterly Journal of Economics.* 106. pp. 407-444.

Brehm, J. and Rahn, W. (1997). 'Individual-Level Evidence for The Causes and Consequences of Social Capital'. *American Journal of Political Science*. Vol. 41(3). pp.999-1023.

Campbell, J.Y., Lo, A.W. and MacKinlay, A.C. (1997). *The Econometrics of Financial Markets*. Princeton University Press, Princeton.

Chomsisengphet, Souphala Alyssa.(2000). *Towards Understanding the Asian Crisis and Its Aftermath: The Adjustments of Output and Price to Exchange Rate and Domestic Shocks (Indonesia, Korea, Malaysia, Philippines, Thailand).* PhD Thesis. The University of Wisconsin-Milwaukee.

Cuddington, J. (1986). 'Capital Flight: Estimates, Issues and Expectations'. *Essay In International Finance*. No. 58. Princeton University. Princeton, New Jersey.

Cukierman, A.; Edwards, S. and Tabellini, G. (1992). 'Seigniorage and Political Instability'. *The American Economic Review*. Vol. 82. Issue 3. pp. 537-555.

Edward, S and Santaella, J. (1993). 'Devaluation Controversies in the Developing Countries'. In *A Retrospective on the Bretton Woods System*. Bordo, M and Eichengreen, B. Eds. University of Chicago Press. Chicago.

Edwards, Sebastian. (1989). *Real Exchange Rates, Devaluation and Adjustment*, The MIT Press. Cambridge.

Edwards,Sebastian. (1999). 'How Effective are Capital Controls?'. *Journal of Economic Perspectives*. Fall. pp.65-84.

Eichengreen, Barry. (1999). *Toward a New International Financial Architecture: A Practical Post-Asia Agenda*. Institute for International Economics. Washington D.C.

Frankel, Jeffrey A. (1998). '*The Asian Model, the Miracle, the Crisis and the Fund'*, A Speech Delivered At the US International Trade Commission. April 16.
Grootaert, C. (1999). *'Social Capital, Household Welfare and Poverty in Indonesia'*. Policy Research Working Paper No. 2148. The Wold Bank Social development Department.

Helliwell, J. (1996). *'Economic Growth and Social Capital in Asia'*. NBER Working Paper No. 5470.

Hibbs, D. (1973). *Mass Political Violence: A Cross-Sectional Analysis*. Wiley and Sons. New York.

IMF, *Balance of Payments Statistics Yearbook*.(various issues)

IMF, *Direction of Trade Statistics Yearbook*. (various issues)

IMF, *International Financial Statistics Yearbook*. (various issues)

Johnson, S. and Milton T.(2001). *Cronyism and Capital Controls: Evidence From Malaysia*. NBER Working Paper No.W8521. October.

Kaplan, E and Rodrik, D.(2000). *Did Malaysian Capital Control Work?*. Harvard University Manuscript. December.

Kaplan, Idanna. (1999). *The Financial Crisis in Southeast Asia: Measuring the Size of Implicit Deposit Insurance Guarantees (Indonesia, Malaysia, Singapore, Korea, Thailand).* PhD Thesis. University of Washington.

Knack, S. and Keefer, P. (1997). 'Does Social Capital Have An Economic Payoff? A Cross-country Investigation'. *Quarterly Journal of Economics.* vol. 112(4). pp. 1251-1288.

Krishna, A. and Uphoff, N. (1999). '*Mapping and Measuring Social Capital: A Conceptual and Empirical Study of Collective Action for Conserving and Developing Watersheds in Rajasthan, India'*. Social Capital Initiative Working Paper No. 13. The World Bank. Washington DC.

La Porta, R.; Lopez-de-Silanes, F.; Shleifer, A. and Vishny, R. (1997). 'Trust in Large Organisations'. *American Economic Review*. Vol. 87(2). pp. 333-338.

Lee, Eddy. (1998). *The Asian Financial Crisis: The Challenge for Social Policy*, International Labour Office(ILO). Geneva.

Londregan, J. and Poole, K. (1990). 'Poverty, the Coup Trap and the Seizure of Executive Power'. *World Politics*. 92. pp. 1-24.

Londregan, J. and Poole, K. (1991). *'Leadership Turnover and Unconstitutional Rule'*. Unpublished.

Lu, Jiaqing. (1999). *Inequality and Industrial Change in China and Financial Crisis in Thailand: An Analysis Using Cluster and Discriminant Techniques and the Theil Inequality Measures*. PhD Thesis. The University of Texas at Austin.

Mishkin, Frederic S.(1999). 'Global Financial Instability: Framework, Events, Issues'. *Journal of Economic Perspectives*. Fall. pp.3-20.

Poonpatpibul, Chaipat. (2000). *Asian Currency Crisis Contagion*. PhD Thesis, University of Pennsylvania.

Rogoff, Kenneth. (1999). 'International Institutions for Reducing Global Financial Instability'. *Journal of Economic Perspectives*. Fall. pp.21-42.

Rose, R. (1999). *'Getting Things Done in An Antimodern Society: Social Capital Networks in Russia'*. In Dasgupta and Serageldin (1999: pp. 147-71)

Venieries, Y. and Gupta, D. (1986). 'Income Distribution and Socio-Political Instability As Determinants of Savings: A Cross-Sectional Model'. *Journal of Political Economy*. 96. pp. 873-883.

Xie, Shiqing. (2000). *The East Asian Financial Crisis: A Critical Examination of Four Alternative Models*. PhD Thesis. University of Maryland College Park.