

AN ANALYSIS OF CAPITAL FLIGHT FROM EAST ASIAN EMERGING ECONOMIES

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ABSTRACT

This paper studies capital flight as the main culprit of the currency crises of the late 1990s in the South East Asia. The paper examines definitions and different approaches to measuring capital flight; a refined residual approach to the measurement of capital flight is developed. Estimates of capital flight from the Region for the 1987 through 1997 period are then calculated and reported. An empirical model is used to examine the economic and political determinants of capital flight. Among other things, the findings of the paper draw attention to corruption that may play a significant role in international movement of capital and call for greater openness of both private and public sector's accounting practices.

INTRODUCTION

In 1997 the U.S. financial markets were rocked by news of currency crises from Thailand, Malaysia and Indonesia. One major consequence of the currency crises was a substantial devaluation of these countries' currencies. Worst yet, it seemed that these currency difficulties were spreading throughout the rest of East Asia region (the Philippines, and South Korea) as though it were a modern economic version of the plague. Only China seemed to avoid the worst symptoms of this economic plague, perhaps as a result of its managed economy. These currency crises seemed particularly troublesome because the countries experiencing these near disasters were among the "Asian Tigers" whose double-digit economic growth rates was the envy of the world. In fact, in 1993, the World Bank used the term "East Asian Miracle" to describe the economies of these nations (World Bank, 1993).

The currency crises were a symptom of more fundamental problems within the East Asian economies. Chief among the issues identified by scholars and policy makers is the phenomenon of capital flight from the region (Stiglitz, 1998; IMF 1999). The tangled weave of financial flows that ultimately resulted in a net capital loss from these countries underpins the continuing

financial difficulties that first surfaced in 1997 in the region.

The evidence to be examined here presents a near epic tale of intrigues involving foreign governments, international organizations, and midnight escapes by private businessmen lugging suitcases filled with money. In one tale told by an insider, in May 1999, the head of the Jakarta branch of the Indonesian Chamber of Commerce, warned that 25,000 Indonesian businessmen had already fled the country with an estimated 500 million U.S. dollars in their briefcases. He warned that 2000 would be perhaps a worse year (Asian Intelligence, 1999). All this in a time period when the International Monetary Fund and the World Bank were pumping capital into these economies to support their free falling currencies, and to prevent a potential collapse of these economies (Fischer, 1998; and International Monetary Fund, 1999).

The purpose of this paper is to examine capital flight from the six countries that comprise the emerging nations of the East Asia region. Specifically, this paper will present estimates of the magnitude of capital flight from East Asian countries from 1987 to 1997, and ascertain the economic and political determinants of this movement of capital out of East Asia. Singapore, Taiwan and Hong Kong were not included in the study because they were relatively high-income countries, and were not victims of the financial crises of the late 1990s to the same extent as the emerging countries in the region.

The first section of this paper reviews the literature concerning the definition and measurement of capital flight. Also, estimates of capital flight from the East Asia region for 1987 through 1997 and refinements to those measurements are discussed. The second section of the paper examines the economic, financial, and political variables hypothesized to be associated with capital flight. The empirical model is developed in this section as well. The third section presents the empirical results. The final section elaborates on the results and offers conclusions inferred from the evidence.

DEFINITIONS AND MEASUREMENTS OF CAPITAL FLIGHT

According to Ketkar and Ketkar (1989):

We must emphasize that the concepts of capital flight and that of its measure, in particular, are complex and elusive endeavors. Because economic agents engaging in capital flight are likely to shroud such activity in secrecy, measuring capital flight precisely is quite difficult.

One of the disquieting problems with measuring capital flight is the absence of precise, and universally accepted definitions of the phenomenon. In a rudimentary sense, the definition of capital flight is left to the operational measures adopted in empirical studies, or within contextual frameworks describing how the capital flees an economy. Because there are competing methods of measuring capital flight, a crisp, clean, and universally accepted definition of capital flight yet alludes the profession.

As close as we have yet come to a crisp, and clean definition of capital flight is that of Walter (1987), he observes:

. . . as correctly defined, capital flight, therefore, appears to consist of a subset of international asset redeployments or portfolio adjustments – undertaken in response to significant perceived deterioration in risk/return profiles associated with assets located in a particular country – that occur in the presence of conflict between objectives of asset holders and the government. It may or may not violate the law. It is always considered by authorities to violate an implied social contract.

However, this definition focuses on capital flight purely as a private sector phenomenon. In Kindleberger's original view of capital flight, he made no distinction between governmental officials or private entrepreneurs carrying capital out of an economy (Kindleberger, 1937). It is plausible that certain types of capital flight are functions of the government, or worse still governmental corruption (Bardhan, 1997).

The definition of capital flight becomes operationalized when it is measured. Accounting, in its truest sense, is the art of creating images useful in decision-making and tracking certain aggregates. In that sense, there are competing images of capital flight. The approaches (competing images) that have been used to

measure capital flight can be divided into two general categories: The *direct* measurements and the *indirect* measurements where the latter are based on residual approach.

DIRECT APPROACH

The direct approaches to measuring capital flight use the data on changes of foreign assets held by domestic residents, which are recorded in a country's balance of payments statistics. Underpinning this approach to measuring capital flight is the ability of some domestic economic agents to react rapidly to macroeconomic instabilities. Thus, in this approach only changes in the short-term recorded foreign assets of domestic agents is defined as capital flight and is generally referred to "hot money". The net errors in, and omissions from the balance of payments are included in this measure and interpreted as the minimum direct measure of capital flight (Cuddington 1986; Dunvenday 1987; Sinn 1990).

This approach, however, suffers from several problems. First, it excludes the unrecorded foreign assets held by domestic residents. There is a certain *ad hoc* quality about excluding foreign assets known to exist simply because they are unrecorded. Therefore, some scholars (e.g., Eggertstedt, Hall and Wijnbergen 1995) argue that it is more consistent with the broader definition of capital flight to include the known unrecorded assets. Second, it is not obvious why accumulations of long-term foreign assets such as foreign equities, bonds, and real estate should not be included in the measurement of capital flight (Eggerstedt, Hall and Wijnbergen 1995). Third, this approach also excludes governmental accumulations of foreign assets. Corruption, lack of openness and thus lack of public information about governmental finances, and limited accountability in many of the emerging countries permit the government officials to transfer unrecorded funds abroad. An appropriate measure of capital flight must take these factors into account. Fourth, some measurements that fall in this "direct approach" category make no distinction between normal and abnormal capital outflows. In the normal course of business, both private enterprises and governments hold some recorded foreign assets for international business activities. Currency reserves, portfolio diversification including foreign assets, and commodity hedging are but a few examples of these types of recorded foreign asset holdings. These recorded assets are called "normal" and, therefore, must be excluded from the measurement. Authors like Khan and Uihau (1987), Deppler and Williamson (1987), and Dooly (1988) have tried to distinguish capital flight from the "normal" holdings

such as portfolio diversifications. For instance, Dooly (1998) regards “normal” foreign assets as assets, which generate recorded income. On the other hand, foreign assets, which do not generate reported income must originate from circumventing controls and, therefore, should be considered as capital flight. He uses foreign average market yield to calculate the fair return on the accumulated recorded foreign assets held by private sector. Then, he compares that yield against the recorded interest income of the assets as it appears in the domestic balance of payments. Finally, he reports the difference between the two numbers as a direct estimate of the capital flight from that economy. The problem with this approach is that the foreign market yield on reported assets held abroad, is liquidity and risk dependent. The determination of an average market yield in this approach is problematic (Eggerstedt, Hall and Wijnbergen 1995) and may lead to misestimation.

INDIRECT OR RESIDUAL APPROACH

The indirect or residual approach to measuring capital flight focuses on the recorded differences in a country’s inflows and outflows of funds. Therefore, the residual which is unrecorded, is considered to be the estimate of the amount of capital flight. It is presumed in this approach that each country has only two sources of foreign funds; foreign borrowing and net foreign direct investment (NFDI). These funds can be used to either finance a current account deficit or as official international reserves accumulations. Again, any difference (the residual) between the sources and the uses of the funds is an indication of private unrecorded foreign assets and, thus, the capital flight. This approach has been used by the World Bank (1985), Morgan Guaranty Trust Company (1986) and by scholars examining the problems associated with capital flight, i.e., Erbe (1985). In the residual approach, if we let KF be capital flight, KF is estimated as:

$$KF = \Delta SFD + \Delta NFDI - \Delta CAB - \Delta IR$$

where:

- ΔSFD : change in the stock of total foreign debts
- $\Delta NFDI$: change in the net foreign direct investment
- ΔCAB : change in the current account balance
- ΔIR : change in the international reserves (including gold)

The residual approach is not without its criticisms. First, it does not differentiate between the change in the stock of foreign debt as is reported in the World Debt Tables and the flow of debt as is reported in the Balance of Payments Statistics for the country. This mixing of stock and flow concepts leads to overestimation or underestimation of the amount of the capital flight (Eggerstedt, Hall, and Wijnbergen 1995). For instance, the debt-equity swaps (World Debt Tables 1993), reduce stocks of total foreign debt of a country without a corresponding entry in its balance of payments. Therefore, this type of transaction suggests a larger reduction in the sources of funds and lower amount of capital flight (or increased capital repatriations). Second, it does not subtract from the amount of capital flight the “normal” foreign-recorded assets held abroad by government and the domestic private sector such as banks , *etcetera*. Finally, NFDI includes only long-term investments and ignores short-term investments.

A REFINED RESIDUAL APPROACH TO ESTIMATION OF CAPITAL FLIGHT

The approach adopted in this study is residual based, but it attempts to remedy the shortcomings mentioned above. Thus, the following formula is used to estimate the magnitude of capital flight from the East Asian economies:

$$KF = \Delta FFDTPS + \Delta FFDTPRS + \Delta NSTFI + \Delta NLTFDI - \Delta CAB - \Delta OIR - \Delta FFAPS - \Delta FFAPRS$$

where:

- KF: amount of capital flight
- $\Delta FFDTPS$: change in the Flow of Foreign Debt by Public Sector
- $\Delta FFDTPRS$: change in the Flow of Foreign Debt by Private Sector
- $\Delta NSTFI$: change in the Net Short-Term Foreign Investment
- $\Delta NLTFDI$: change in the Net Long-Term Foreign Direct Investment
- ΔCAB : change in the Current Account Balance
- ΔOIR : change in the Official International Reserves (including gold)

△FFAPS: change in the Flow of Foreign recorded Assets held by Public Sector

△FFAPRS: change in the Flow of Foreign recorded Assets held by Private Sector (banks as well as non-bank entities)

CAPITAL FLIGHT ESTIMATES

Utilizing the formula reported above, capital flight was estimated for each of the countries that comprise the East Asia region, including the People's Republic of China. For the period 1987 through 1997, about \$372 billion dollars fled the six countries examined here (China, Indonesia, Korea (Republic of), Malaysia, the Philippines, and Thailand).

First column of Table 1 reports the total amount of capital flight for each of the six countries examined over the study period (1987 through 1997). The second column reports the amount of capital flight for the last five years of the period, and the third column shows the capital flight occurring in the last five years of the period as a percentage of total capital flight. Capital flight from Indonesia (\$91.6 billion), Korea (\$110 billion), and Thailand (\$90.3 billion) account for nearly \$292 billion of the \$372 billion or about 78.5 percent of the total capital that fled the region. With the exception of China, the magnitude of the capital flight from these East Asian countries is consistent with the relative sizes of the economies. Korea is the largest of these economies (\$442 billion of GDP in 1997), Indonesia is the second largest (\$215 billion of GDP in 1997) and Thailand is the third largest (\$154 billion of GDP in 1997)¹. In 1997, the Philippines and Malaysia had their GDP just under \$100 billion, and the amount of capital flight from these economies is consistent with the size of their respective GDPs.

Beginning in 1993, there was a surge in foreign direct investment in the East Asian region. There were three reasons for occurrence of this phenomenon: a substantial deregulation of financial markets in these East Asian countries, promotion of privatization and liberalization of trade policies in the region, and the rise of popularity of investing in "global" funds in the financial markets of developed countries (World Debt Tables, 1995 and 1996).

Column three shows that, with the exception of China, the overwhelming majority of the capital flight from the region occurred in the last five years of the

¹ GDP data for these economies are from *International Financial Statistics Yearbook, 1999*. Washington, D.C.: International Monetary Fund, 1999.

period. In the case of China, only 21 percent of its capital flight occurred in the last five years of the period.

THE EMPIRICAL MODEL

The objective of the empirical model is to identify the financial, economic and political determinants of the capital flight in the East Asian region. The predictor variables used to construct the model are identified by the previous research to explain variations in capital flight. The reasoning behind the choice of these variables is presented here.

A measure of economic stability in an economy is the ratio of government budget surplus to GDP (GBSGDP)². Dooley (1988) contends that economies with budgetary surpluses tend to be stable economies due to the amelioration of fears of future increased burdens of taxation on the residents. This taxation burden can result from the government printing money to cover budgetary deficits, hence generating inflation (and its attendant burdens) or through an actual increase in taxes, which are essentially burdensome (Cuddington, 1986). The lower is the budget deficit (or the higher the budget surplus) the less is the possibility of a governmental monetary or fiscal action that imposes extra economic burden and thus *ceteris paribus*, the less the capital flight. Therefore, it is hypothesized that GBSGDP should be negatively correlated with the capital flight. Incidentally, the countries included in the study do not suffer inflation (Stiglitz 1998) and on average, have enjoyed a budget surplus of approximately 1% of their GDP.

Among the factors recognized to influence movements of capital across the international borders is the exchange rate risk. Currency devaluations and changes in the exchange rates could result in a sudden and substantial loss of value of capital which is labeled as currency risk. To capture the effects of currency risk on capital flight, a financial variable called Real Covered Interest Rate Parity (RCIRP) has been incorporated in the empirical model. Dooley (1988) has used this variable and has argued that it is an indicator of "financial repression." The formula used to calculate RCIRP³ is:

$$RCIRP = (ig - pr - lcd) - (ius - prus)$$

where:

² The data for this variable has been calculated using various issues of *International Financial Statistics Yearbook*, Washington, D.C.: International Monetary Fund, various years. The calculated observations are available on request.

³ Ibid.

ig = nominal interest rate on one-year government security,

pr = annual inflation rate calculated using domestic Consumer Price Index,

lcd = annual percentage rate of devaluation of local currency vis-à-vis the U.S. dollar,

ius = nominal interest rate on one-year U.S. T-bill, and

prus = annual inflation rate in the U.S. as measured by the percentage change in the CPI.

Therefore, RCIRP measures the spread between the real rate of return on domestic security and the real rate of return on holding U.S. T-Bills. All other things equal, the higher the real rate of return on domestic securities relative to U.S. T-bills, the higher is RCIRP and the lower is the capital flight. Thus, a negative relation between Real Covered Interest Rate Parity (RCIRP) and capital flight is hypothesized.

MEGDP⁴ is the ratio of military expenditures to GDP for a given country. This variable is included as a measure of political instability or a proxy for country risk. The percentage of GDP that is spent on the military is a proxy for the perceived internal and external threats to the current government. This variable is expected to have a positive association with the capital flight, the more the political instability, the higher is the capital flight.

XMGDP⁵ is the ratio of exports plus imports to the GDP of an economy. This is a standard measure of the openness of the economy (Ades and Glaeser, 1999). The more open the economy the more capital flight should be observed, *ceteris paribus*. Therefore the expected sign of this variable should be positive

The model to be estimated in the regression analysis, using ordinary least squares is therefore:

$$KF = \alpha + \beta_1 \text{GBSGDP} + \beta_2 \text{RCIRP} + \beta_3 \text{MEGDP} + \beta_4 \text{XMGDP} + \epsilon$$

The regression results are reported in the following section.

STATISTICAL EVIDENCE

Two separate equations were estimated. The Peoples' Republic of China is a planned economy and therefore

⁴ Ibid.

⁵ The numerator for this variable is from *World Military Expenditures and Arms Transfers*. Washington, D.C.: U.S. Government Printing Office, various years.

has few institutions in common with the remaining economies. Further, the political system and amount of public sector control in China is far greater than the remaining East Asian nations.

Table 2 presents the results of the regression analyses for the five East Asian economies excluding the People's Republic of China. The evidence presented in Table 2 is consistent with the hypothesized associations of the independent variables with the dependent. GBSGDP and RCIRP both exhibit negative coefficients and XMGDP and MEGDP both exhibit positive signs. The t-statistics indicate that each of these coefficients are significant at the .05 percent level. Approximately 72 percent of the variation in KFGDP is explained by the model. Further the Durbin-Watson D statistic suggests there is not serial correlation.

The data used for the regression analysis of China, is time series analysis. The data available for China was quarterly data, rather than the annual used in the regression reported in Table 2.

Table 3 presents the regression results for the equation estimated for China. Again, there is no evidence of first order serial correlation and approximately 63 percent of the variation in KFGDP is explained for the model estimated for China. However, as may have been easily predicted the coefficient for XMGDP was not significant. This variable is a measure of the openness of the economy. China has become increasingly open since the middle of the 1990s, but as of the end of the period under examination here, there were still substantial barriers to doing business in China and to normal trade relations with China. As of this writing China has not finalized its membership in the World Trade Organization.

The coefficient for GBSGDP is significant at .05 and is of the wrong sign. This variable was thought to capture the effects of taxation and inflation risk. However, in a planned economy the positive sign may not be the wrong sign for this coefficient. Perhaps more convincingly, China was the only one of the six nations examined that had chronic budgetary deficits for the period. The budget deficit, together with the more strict control of the movement of capital explains why a positive sign should be observed in the case of China.

The remaining two coefficients for the variables RCIRP and MEGDP both significant and of the correct sign.

DISCUSSION AND CONCLUSION

The residual measure of capital flight used here is somewhat more inclusive than most reports of capital flight because no attempt was made to exclude capital

flight originating in the public sector, and reported foreign held assets were also not excluded. The calculation of capital flight also eliminated the confusion of stocks of foreign debt versus the flow of foreign debt. Included in the residuals here were only the flows of debt. This broadens the view of capital flight from simply risk management, to include the possibility for governmental corruption.

The regression analysis evidence supports a conclusion that there are differences in the determinants of capital flight between China and the remaining five economies in East Asia. The coefficients for the five countries other than China were as expected and the differences in the significance and the signs for the coefficients in the China equation should be expected for a rather closed, authoritarian society such as China.

The degree of openness, and lack of political stability (measured by the government's perceived need to be well armed) are positively associated with capital flight. The real covered interest rate parity and the inflation and taxation risk variable are negatively associated with capital flight. For emerging, market economies then it seems clear that the elimination of risk internally is desirable if capital is to be kept at home. Stable institutions, with minimal political discord, foreign military threats, and government surpluses seem to be suggested by the evidence as sound policy to minimize capital flight.

The openness of the economy presents a policy dilemma. It is, in fact, a double-edged sword. Openness of the economic system is often a significant stimulus to economic growth through imported technology and opening markets to exports (Ades and

Glaeser, 1999). However, the evidence reported here is consistent with that same openness permitting both the private and public sector movement of capital out of the domestic economy. This dilemma requires a very delicate balancing of policies to foster growth, while at the same time not encouraging the movement of badly needed domestic capital abroad.

Finally, as with any research of this nature, there is clearly the need for substantially more work to be done before the issues associated with capital flight are finally laid to rest. Perhaps the most important of these issues, is the serious need for greater understanding of the concept of capital flight, allowing for movement toward a more universally understood and accepted definition and mode of measurement of the phenomenon. This also includes far greater openness of private and public organizations concerning their movement of capital among nations. With the vast global economy and multinational corporations, openness of capital accounting practices and data will become an increasingly important issue.

As was mentioned in the introduction there are numerous economic ills that are associated with slowed economic growth, the currency crisis of 1997 was but one. The five nations at the core of that financial debacle all experience massive capital flight that brought not only economic stagnation, but the near collapse of their monetary systems. Such free movement of significant amounts of capital from developing economies is a serious issue for international policy and stabilization.

Table 1. Estimated Amount of Capital Flight From East Asian Countries

	Total Amount of Capital Flight (Billions of U.S. Dollars) (1987-1997)	Amount of Capital Flight (Billions of U.S. Dollars) (1993-1997)	Capital Flight During 1993-1997 as Percentage of Total Capital Flight
Indonesia	91.6	47.1	51
Korea, Republic	110.0	86.5	79
Malaysia	24.3	18.8	77
the Philippines	25.5	17.3	68
Thailand	90.3	59.7	66
China	32.5	6.7	21

Table 2. Determinants of Capital Flight From East Asian Countries (1987-1997)

Variables	Coefficients	t-Statistic
Constant	0.979112	1.000882
GBSGDP	-0.9936421	-2.510461
RCIRP	-0.325183	-2.571439
XMGDP	0.011940	2.481938
MEGDP	1.638660	3.760524
R-Squared:	0.762034	
Adjusted R-Squared:	0.718997	
F-Statistic:	10.73569	
Prob(F-Statistic):	0.000002	
Durbin-Watson Stat.:	2.578548	

Table 3. Determinants of Capital Flight From China (1987-1997)

Variables	Coefficients	t-Statistic
Constant	-0.901930	-0.759340
GBSGDP	0.009219	2.018121
RCIRP	-0.092190	-2.567213
XMGDP	0.010484	0.607520
MEGDP	0.383024	2.687300
R-Squared:	0.648745	
Adjusted R-Squared:	0.628340	
F-Statistic:	12.202530	
Prob(F-Statistic):	0.000685	
Durbin-Watson Stat.:	2.123476	

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