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Resident Capital Outflows:

Capital Flight or Normal Flows?
A Statistical Interpretation

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1 Introduction

Access to finance by developing countries is a matter of great concern. A related concern is that residents in many capital-scarce countries hold assets abroad which may amount to capital flight. Outflows of resident capital from developing countries have been rising (Schneider, 2001) even when, as in recent years, net capital inflows to them have been falling. It was widely believed in the wake of the debt crisis in Latin America in the early 1980s that resident capital outflows were equivalent to capital flight. The argument was that, had this capital been available domestically, it would have enhanced domestic savings and investment and reduced the reliance on foreign capital.[1] Yet in a world where many developing countries have liberalised their capital accounts, and with their subsequent financial integration with the rest of the world, it is extremely difficult to equate them with capital flight. It is therefore important to understand which resident capital outflows occur because of flight motives. One of the purposes of this paper is to illustrate that all resident capital flows cannot be identified as capital flight, and that the response of the international community by merely observing resident capital flows can be overstated.[2]

Capital flight is defined here as the outflow of resident capital from a country in response to economic and political risk in the domestic economy. The loss of capital through capital flight has implications for the future growth prospects of the country. Capital is already scarce in many of the countries which are believed to experience capital flight and, as a natural corollary, it is assumed that if the funds are held at home they can be utilised to reduce the level of external indebtedness and the inherent liquidity constraints in bridging the foreign-exchange gap. The loss of capital through capital flight also erodes the domestic tax base in developing countries and has adverse implications for the distribution of income. It is feared that the flight of capital from developing countries may send a signal to foreign private investors about the risks involved and lead to a decline in, or even cessation of, private capital flows.

The statistical analysis in this paper attempts to provide some demarcation between normal capital flows and capital flight by making an analytical distinction between three sets of explanations for resident capital outflow:

- resident capital outflows which occur in response to the investment climate;
- resident capital outflows resulting from policies that lead to discriminatory treatment of residents' capital, such as guarantees to, or inflation hedges for, foreign capital. This is a response to asymmetric risk and information that drives a wedge between the actual or perceived risk/return between resident and non-resident capital so that resident capital flow is one side of a two-way flow;
- resident capital outflows as a response to economic and political instability.

The paper attempts to classify resident capital outflows as either *normal flows* or *capital flight.* The hypothesis is that estimates of resident capital outflows may be measuring perfectly *normal flows*. If known *normal flows* (inflows of external debt, net foreign direct investment, bond and equity flows) and resident capital flows can be explained by common explanatory factor(s), this would indicate that the outflow is normal. The paper then studies the relationship between resident capital flows and identified *normal inflows* of capital to interpret the nature of resident capital flows across regions and a selected sample of countries.

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1 In the 1980s this argument did not go undisputed. Yet, almost all empirical research on capital flight since the debt crisis in the early 1980s equates resident capital outflows to capital flight for all developing countries.

2 Some examples of this response include US Treasury Secretary James Baker's comment in 1985: 'It is unrealistic to call upon the support of voluntary lending from abroad, whether public or private, when domestic funds are moving in the other direction'. Commercial bankers also voice similar sentiments and describe themselves as 'understandably reluctant to provide fresh funds unless the debtors put a stop to capital flight' (De Vries, 1986, p.6).

If the explanatory power of the common factor(s) is low and the uniqueness of resident capital flows is high, the result would be indicative of capital flight. If high uniqueness (capital flight) is accompanied by common factor(s), then some part of the flow may be normal resident flows. If the same signs are obtained for the common factor(s) for all types of flows, it is indicative that resident capital flows are financing some inflow of capital or vice versa. If the sign for the resident capital flow is negative, it is indicative that an improvement in the common factor (investment climate) is leading to inflows of resident capital. The former can be described as *round tripping,*[3] although the direction of causality cannot be established from the analysis. The latter would be the most acceptable case for a *normal flow*.

This paper therefore examines the relationships among all types of capital flows and in particular that between resident capital flows (RKF) and other components. The relationship between resident capital flows was examined in earlier studies with two specific questions in mind:

- Does external debt finance capital flight?[4]
- Does FDI finance capital flight?

Another category is now added:

- Does resident capital outflow finance an inflow?

Thus resident capital flows can be one side of a two-way flow response to asymmetric risk.

The method used in this paper is a departure from earlier studies. While Kant (1996) examined the extent of co-movement between capital flight, portfolio flows and FDI using principal component analysis, more information can be gauged by using factor analysis. Kant (1996) interpreted the first principal component as investment climate and it took all the variance of the data set into account, thus ruling out any uniqueness for capital flight. This is probably because his analysis does not allow for the possibility that his estimates of capital flight may contain a normal component and an abnormal component, and instead features all resident outflow as capital flight. This paper takes the analysis further by using factor analysis to split the total variance explainable by the model into common variance (due to normal flows) and variance that is unique.

The paper is organised along the following lines. The next section presents trends in resident capital flows. Estimates of resident capital flows are from Schneider (2001). Section III discusses the conceptual differences between resident capital flow as a one-way flow in response to the investment climate, resident capital outflows as one side of a two-way transaction and also resident outflows as a result of abnormal risks. This provides the basic rationale for the statistical exercise. Section IV describes the techniques adopted for the analysis and presents the results. The concluding section considers the main implications emerging from this analysis.

3 Dooley (1988) explained round tripping as due to asymmetric risk and asymmetric information. Resident capital flows out to arbitrage a risk differential.

4 The right term would be resident capital flow although the literature refers to it as capital flight as explained in note 1.

2 Trends in Resident Capital Flows

In recent years much of the discussion on private capital flows relates to bond, equity, FDI and debt inflows into developing countries. Resident private capital outflows from developing countries are not widely discussed because of the difficulty of obtaining direct information about developing country assets abroad. Statistics on bank deposits are available from the BIS but as a record of resident claims abroad they suffer from numerous limitations. The IMF reports the assets of non-banks in 33 banking centres but, like the BIS, does not distinguish between the official and private sectors. The drawbacks of these two data sets are: (i) not all external assets are in the form of bank deposits, and (ii) not all sets belonging to residents abroad are registered because some of the funds are held in centres which do not report to the IMF and BIS and the nationality of the depositor is not always known.

There are also differences in coverage between country and institutional reporting. Landell-Mills (1986) points out that the statistics available from the IMF and BIS are not always based on direct information but are in part derived from other sources, such as the balance of payments, in order to deal with incomplete coverage and data inconsistencies. Since the coverage of the direct data (banking assets) does not include all resident flows, an indirect method is used to estimate resident capital flows. Another source of data is the US Treasury which reports data on the liabilities of US banks and brokerage houses to the private non-banking sector of foreign countries.[5] The shortcoming of this source of data is that it covers the flow of private capital only into the United States and assets are only in bank and custody liabilities. The data series can be regarded, however, as the minimum measure of the external assets of a developing country.

Any analysis of resident capital flows is based on an estimate of these flows – basically a residual method drawing on the sources and uses of finance, using the double entry system in the balance of payments which provides a link between the portfolio and spending decisions of the economy. This method is taken from a seminal paper by Dooley et al. (1983) which has been the basis for research on capital flight. Although the original study regarded the estimate as a measure of private external claims, subsequent studies, including those by the IMF and World Bank, termed it capital flight. An increase in gross external debt corresponds to three broad sources of finance from the balance of payments: the building up of official reserves and other official balances abroad, the financing of current account deficits, and the accumulation of private assets abroad. The estimation method compares the sources of finance (i.e. the increase in gross external debt and the net inflow of direct investment capital, both liabilities and assets) with the uses of finance (i.e. the change in official reserves, current account deficits and capital outflows). Since the accumulation of private assets is not properly recorded in the balance of payments owing to flight motives or incomplete reporting procedures, an indirect method is used to estimate resident external claims. The calculation is based on the assumption that the current account deficit and changes in foreign-exchange reserves give rise to a financing requirement, which would have to be reflected in the change in gross foreign indebtedness (the redemption of previous loans has already been carried out here). Resident capital outflows are therefore estimated as a residual from the balance of payments data and are widely interpreted as capital flight.[6] The estimated measure is subject to statistical discrepancies but, in the absence of reliable recorded data, it serves as an estimate of resident capital flows.

Estimated resident capital outflows for the six regions of East Asia, Eastern Europe,[7] Latin America, North Africa and the Middle East, Sub-Saharan Africa and South Asia are presented in Figure 1.

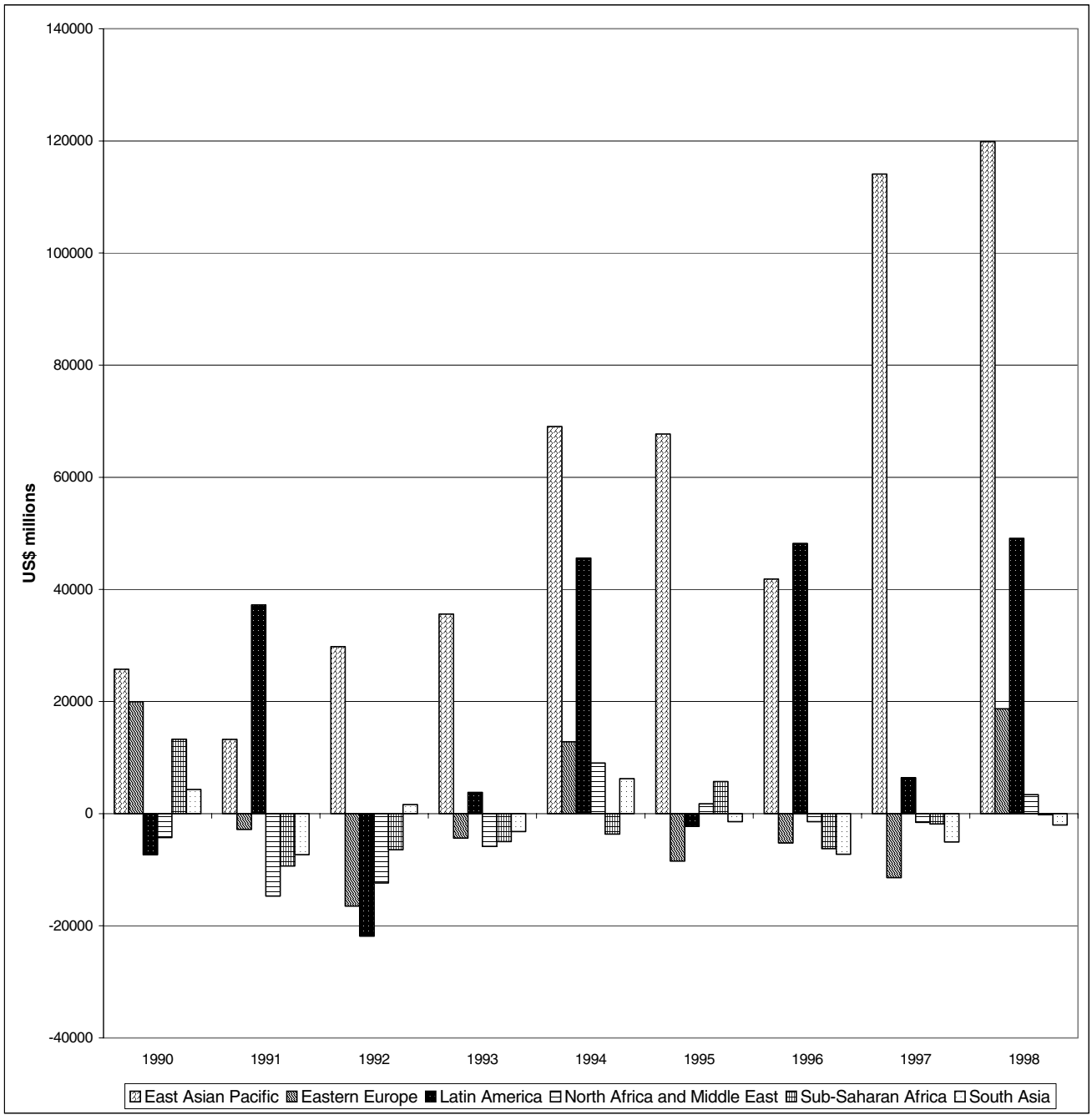
5 U.S. Treasury Bulletin (Washington D.C.), Table 5 CM 1–4.

6 See Schneider (2001) for a detailed exposition of the estimation technique and critical analysis. The following paragraphs on trends in resident capital outflows are based on the research in Schneider (2001).

7 See Appendix 1. The European countries included are those whose economies are in transition from a command to a free-market economy

The data show that resident private outflows of capital in recent years are highest for Latin America and East Asia (which is dominated by the massive outflows from China). In 1998, resident capital outflows as a percentage of GDP were highest for East Asia, followed by Eastern Europe and Central Asia and Latin America.

Figure 1 Regional estimates of capital outflows

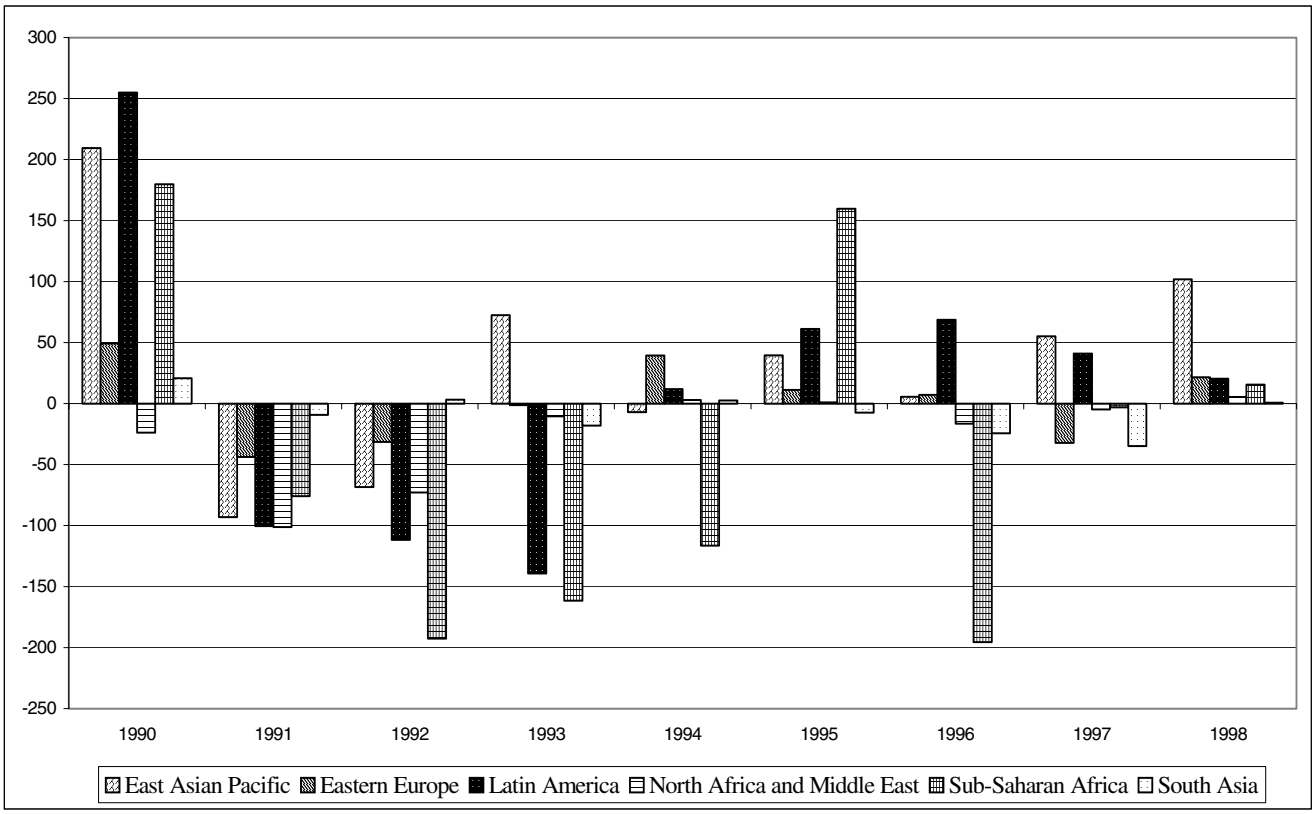


Although private capital flows to East Asia and sub-Saharan Africa are in a similar range when expressed as a percentage of GDP,[8] the ratio of resident capital outflows to GDP is much lower for sub-Saharan Africa (see Figure 2). Sub-Saharan Africa experienced high resident capital outflows between 1985 and 1987 but periods of repatriation are evident thereafter. Outflows were recorded again in 1989–90 and 1995. Contrary to the popular perception of sub-Saharan Africa as a region

8 For example the average for Ghana, for the period 1990–97, is 6.5 and for Thailand, 7.5.

experiencing high levels of capital flight, which contributes to its heavy debt burden, it has experienced repatriation of resident capital flows since 1992, with only a small outflow in 1995. If these estimates are adjusted for debt forgiveness and cross currency valuation, 1998 records only a small outflow.[9]

Figure 2 Estimated resident capital outflows as a ratio to GDP – by region



9 See Schneider (2001)

3 Explanations for Resident Capital Outflows

Capital flight is widely believed to have destabilizing consequences yet bracketing all resident capital outflows as capital flight can lead to policy errors. There are some arguments for not doing so. For example, Dooley et al.. (1983) call resident capital outflows private external claims and Lessard and Williamson (1987) also label them as resident capital flows. This interpretation is also found in Varman–Schneider (1991) and Vos (1992) who argue that private foreign asset accumulation may be a more appropriate term. However, in spite of this interpretation, both the academic and the popular literature label the accumulation of foreign assets by the private sector as capital flight.[10] One reason for this is the difficulty, as mentioned in Section II, of measuring capital flight. Another is that while foreign asset accumulation does not necessarily have adverse consequences for the domestic economy, it can be argued that, in terms of the two-gap model of development,[11] the transfer of capital abroad by domestic residents can have serious welfare costs in capital-scarce economies with additional constraints on foreign exchange. Nevertheless, the increasing integration of developing countries with global trade and finance means that it is problematic to bracket outflows of capital, even from capital-scarce countries, as capital flight without further analysis.

The relationship between capital inflows and resident capital flows is of great interest to both international investors and domestic policy-makers. One issue is whether the inflow of private capital into developing countries marks the return of capital flight. Another is whether private capital inflows finance resident capital outflows or whether resident capital outflows finance some capital inflow in the form of either FDI or portfolio flows.

The statistical analysis in this paper attempts to provide some demarcation between normal flows and capital flight by making an analytical difference between three sets of explanations for resident capital outflows:

3.1 Investment climate

The theory of capital movements explains normal one-way aggregate flows using the differences in risk-adjusted returns across countries. This explanation has been widely used to explain resident capital flows (termed capital flight). However, resident capital outflow is seen as a reaction to an individual investor's reading of the investment climate. Portfolio diversification of this type obviously cannot have negative connotations. Nevertheless, such investments are termed capital flight because of the assumption that the capital would have yielded a higher rate of social return if it had been invested domestically. Implicit in this assumption is that there is deviation between the private and social rates of return. Cumbey and Levich (1987, page 31) are of the view that 'in order to justify a negative connotation for a sub-set of capital movements, there must be a derogation from the market paradigm, such as between private and social welfare'. Walter (1987) draws a conceptual distinction between capital flight and normal outflows when the capital outflow threatens the attainment of some national objective. Even if it is rational from an individual point of view, it is considered to be capital flight when it violates an implied social contract among domestic agents.[12]

Varman-Schneider (1991) argues that the presumption that capital outflows would yield a higher rate of social return if invested domestically is a result of the premise that the capital lost could have

10 See for example, Ajayi and Khan (2000), Collier et al. (1999), Claessens and Naude (1993) and World Bank (1985)

11 The most significant conclusion of this kind of approach is that a developing country is likely to face a foreign exchange gap and therefore should be a net borrower in the development process.

12 This paper makes an attempt to operationalise the conceptual distinction between capital flight and normal capital flow.

enhanced domestic investible resources and therefore no leakage into domestic conspicuous consumption of foreign goods would have taken place. She further points out that linking resident capital outflows to some notion of national utility or welfare is problematic. 'Economic principles do provide a concept of welfare. In a free-market economy, utility-maximising consumer behaviour and profit-maximising producer behaviour together with efficiencies in distribution lead to maximum national welfare. Yet, utility maximisation of private capital exporters may lead to the creation of disutilities (such as decline in investment and growth) thereby resulting in a loss in welfare. This outcome is in contradiction of accepted economic principles…' (page 28) Another problem is that the subjectivity of the term means that any measure of the social rate of return is open to errors of judgement. Moreover, this approach fails to make the basic distinction between strategic diversification and capital flight.

Conceptually the case for classifying resident capital flows as capital flight if individuals are transferring assets abroad in response to objectives dictated by portfolio theory is weak. A brief survey of the literature based on this explanation is presented as the studies use RKF as the dependent variable even if they call it capital flight.

Cuddington (1986) analyses a sub-section of resident capital flows – short-term capital plus errors and omissions (labelled capital flight in his analysis) – based on a standard three asset portfolio adjustment model using domestic financial assets, domestic inflation hedges (such as land and buildings) and foreign financial assets. The explanatory variables derived from this theory are the expected exchange-rate depreciation plus the foreign interest rate, the domestic interest rate, and the expected domestic inflation. He adds foreign lending to the country as an additional factor explaining the outflows of resident private capital. Currency overvaluation turns out in his analysis to be the most important determinant in countries that experienced severe capital outflows.

Other examples of the use of portfolio theory, with some variations in additional variables to explain these outflows, are Consesa (1987) and Williamson (1986). Recently Collier et al. (1999) carried out the analysis by first converting the flow data into stock data and analysing capital flight as a share of wealth.

Charrette (1993) analysed resident capital outflows, labelled as capital flight, based on a portfolio adjustment model in which the domestic investor holds his/her wealth in either domestic money, domestic government bonds or external financial assets, for three countries – Argentina, Mexico and Venezuela. The results do not imply that capital flight can be fully explained by fundamental determinants such as the rates of return adjusted for risk. The portfolio adjustment model has low explanatory power, particularly in the case of Argentina and Venezuela. The study found that high US interest rates and the absence of capital controls were important in all three countries.

The role of the US economy in explaining these outflows of capital is also identified in Varman-Schneider (1997) for Venezuela, Chile and Colombia. Although portfolio theory is adopted for this study and adjusted to capture the influence of the United States, it is used to explain a frontier, deviations from which are due to economic and political instability. The results indicate that the US economy exercises a significant influence on the movement of resident capital in the sample countries. A second finding is that capital flight is related to the efficiency of the domestic economy.

Calvo et al. (1993) analyse the role of external factors in explaining capital inflows into Latin America. Their findings indicate that these inflows are partly explained by conditions outside the region, like the recession in the United States and lower international interest rates.

Thus the literature on capital flows indicates that, in addition to the domestic investment climate, external factors are an identifiable motivating factor for both the flow of private capital into developing countries as well the movement of resident capital flows. This paper attempts to provide further information by applying statistical analysis to the data to examine whether this explanation is compatible with other explanations for resident capital outflows.

3.2 Asymmetric information and risk

The simultaneity of capital inflows, particularly debt inflows, and resident capital outflows has been explained in the literature as due to asymmetric information and risk. Dooley (1988) analyses asymmetric risk and return and outlines attempts by asset holders to arbitrage a yield differential that is generated by the inflation tax on residents, which it may be possible for non-residents to evade by being permitted to keep foreign currency claims on residents in foreign currency. Dooley's study broadens risk to include a wide range of implicit taxes, which foreign investors do not face because of government guarantees or foreign currency accounts. The risk of inflation or exchange-rate depreciation is therefore asymmetric. The round tripping of flows arrived because of to such factors is the intermediated capital flow. The simultaneous inflows and outflows of capital can also be explained by the differences in anticipations and expectations of changes in the economic and political climate owing to asymmetry in the provision of information to domestic and foreign investors.

Asymmetries in the impact of political risk also lead to two-way flows. Khan and Haque (1985) model the two-way flow that arises because of the asymmetric risk of expropriation faced by domestic and foreign investors. Domestic investors face a higher risk of expropriation, so they move their assets abroad at the same time as foreign investors move into the country. The explanation has been further extended in Eaton (1987), Eaton and Gersovitz (1989) and Ize and Ortiz (1987). The threat of higher taxes because of potential nationalisation, anticipated tax obligations when governments borrow abroad to finance public goods, and fiscal rigidities leading to threats of higher taxes to service foreign debt are the messages of these studies.

The imposition of capital controls that affect only resident capital will have similar outcomes. Dooley and Kletzer (1991) and Razin (1991) focus on different tax treatments for residents and non-residents leading to two-way flows of capital. The uncertainty of future fiscal deficits also leads to simultaneous capital flight and external borrowing combined with lower investment as found in Alesina and Tabellini.(1989).

3.3 Economic and political instability

Capital flight is a response to economic and political instability. The structure of political institutions can be a source of distortions and instabilities. The influence of weak political institutions on economic institutions and their outcomes are further sources of instability. The exodus of capital because of the underlying risk in the domestic economy is a matter of concern because of its harmful consequences for a country. Among the many factors leading to instability are financial repression, default on government obligations, threat of expropriation, lack of credibility of governments and their policies, and actual or perceived policy reversals. Varman (1989) analyses political and economic disarray in prompting capital flight from India and the Philippines. It is the response of resident capital outflow to this abnormal risk which the present study seeks to identify *ex-post* and to infer from the analysis as to whether resident capital flows from a region or country were *normal flows* or *capital flight.*

The statistical analysis in the following section seeks to discover whether one or more of these explanations is a good way to describe resident capital outflows from developing countries.

4 Analysis Technique and the Results

This paper uses factor analysis,[13] rather than regression analysis,[14] because there is no basis for hypothesising the direction of causality in the relationship of the flows to each other. The approach taken here is to see if a common set of factors explain all or some of the flows and whether there is a clear demarcation between the component explaining estimated resident capital outflows and officially recorded normal inflows of capital.

It is hypothesised that the actual components of capital flows into a country are inter-correlated and that this could be explained by some common explanatory variables. It can safely be assumed that capital flows into a country are inter-correlated because of common variables such as the *domestic investment climate* and *external factors* that determine the overall supply of capital to developing countries. There are many variables that can be used to define *investment climate*, and while some of these can be quantified, others cannot. Because of the lack of a ready measure to capture the investment climate, this study adopts a different route. Here *investment climate* is referred to as one of the common or latent factors, or an unobservable construct. Another common factor is the *external investment climate,* which causes inter-correlation among the components of capital flows into a country.

The total variance of components of capital flows can be decomposed into the following components:

- variance that is in common with the general investment climate factor;
- variance that is in common with the external investment climate factor; and
- variance that is in common with a unique factor A.

Thus capital flows are motivated by some explanatory variable(s) that are common to all or some of them, but in addition they can have other explanatory variable(s) which are unique to that particular component of capital flow.

Factor analysis is concerned with finding a small number (q) of common factors that linearly reconstruct a larger set (p) of original variables. $y_{ij} = z_{i1}b_{1j} + z_{i2}b_{2j} + ... + z_{iq}b_{qi} + e_{ij}$ where y_{ij} is the value of the ith observation on the jth variable, z_{ik} is the ith observation on the kth common factor, b_{kj} is the set of linear coefficients called the factor loading, and e_{ij} is similar to a residual but known as the jth variable's unique factor. It should be noted that everything except the left-hand side variable is to be estimated, (STATA 7.O, Reference A-G, 2001: p.510).[15] Once factors and their loadings have been estimated they are interpreted by examining $b_{\underline{kj}}$'s

Chart 1 summarises the basic approach to the analysis. for ease of presentation the chart is set out for two unobservable common factors.[16]

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13 Although factor analysis and principal component analysis appear to be related, they are conceptually two different techniques. In principal component analysis the interest lies in forming a composite index of variables. There is no theory as to why the different variables comprising the index should be correlated. Factor analysis on the other hand, posits that any correlation among the indicators or variables is due to common factors. In other words the common factors are responsible for any correlation that may exist among indicators (Sharma 1996, p. 129).

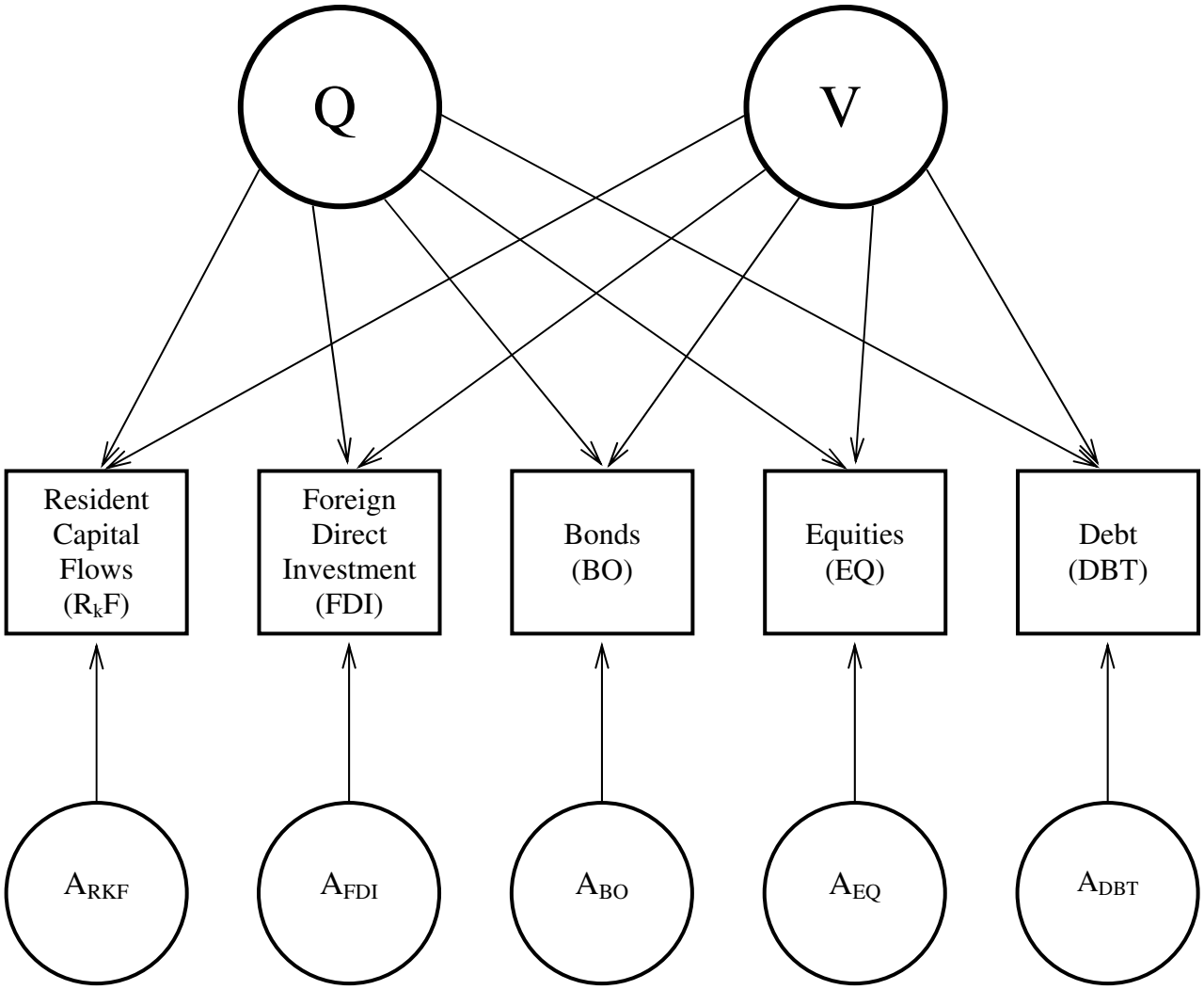
14 Factor analysis is used to uncover the latent structure (dimensions) of a set of variables. It does not specify a dependent variable as in regression analysis. However, factor analysis is part of the multiple general linear hypothesis family of procedures and makes many of the same assumptions as multiple regression.

15 The model presented in this equation has an infinite number of solutions. Techniques differ in the procedures used for estimating commonalities. In a later section we discuss this with the reasoning behind the solution for the present study.

16 In theory one can have more than two factors. A two-factor case is illustrated here for simplicity.

Capital flows are broken down by composition into resident capital flows, net foreign direct investment, equity, bonds, and debt. Q and V are the two common factors that motivate all flows. Each component has a unique factor A, which is an explanatory factor for that component of capital alone.

Chart 1 Model adopted for analysis



Since the aim of the analysis is to identify common factor(s), it would be meaningless to conduct the exercise if the correlation between variables is small because they are unlikely to have common factors (Norusis, 1994). The correlation matrices for the six regions and selected countries illustrated here were examined and showed that, for a large number of observations, a large number of correlations exceeded the recommended minimum of 0.3 (Hair et al. 1995, Nunally, 1978).

To further test whether the data set is suitable for factor analysis the Kaiser-Meyer-Olkin Measure of Sampling (MSA) is also presented. A rule of thumb of MSA between 0.50 and 0.80 is considered as being in the acceptable range for sample adequacy. According to this, all the regions except North Africa met the sampling adequacy criterion (see table 1). Researchers also often combine the scree plot of latent roots with MSA to judge if the data set is suitable for factor analysis. The plot of eigenvalues should break sharply at least once; if a continuous line is plotted, whether straight or curved, factoring may be inappropriate (Mitchell, 1994). The scree plots shown in Chart 2 for the six regions reveal that the eigenvalue plots did show breaks. This indicates that all the regions satisfy the criterion, as none of them produces a straight line or curve. It was therefore considered

appropriate to carry out the analysis for all regions, but to interpret the results for North Africa with caution, and to consider the results for this region as indicative.

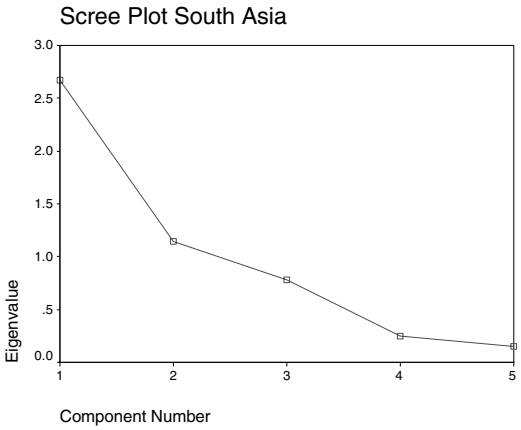
Table 1 Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) for regional analysis

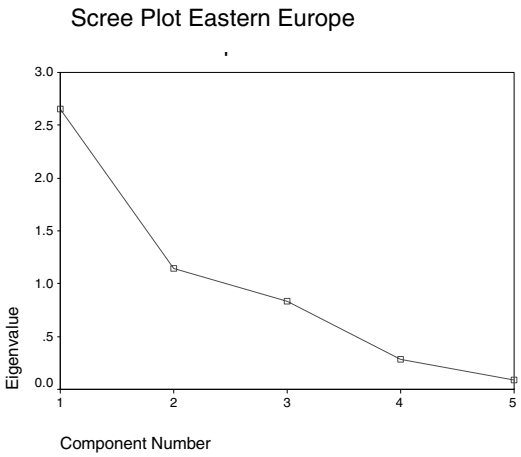
REGION	MSA
East Asia	.69
Eastern Europe	.57
Latin America	.62
North Africa	.26
South Asia	.60
Sub-Saharan Africa	.69

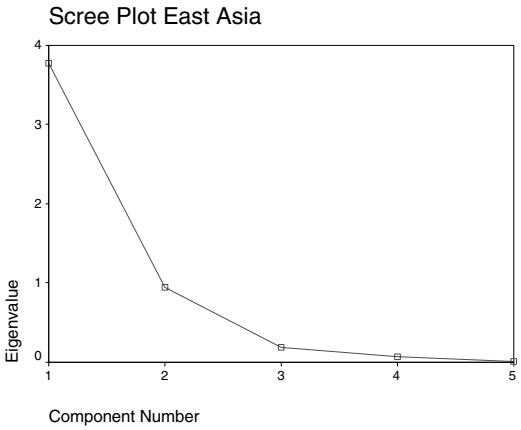
We also examine the commonality between the five components of capital flows considered for this study using principal component analysis. Table 2 presents the results based on this method. The first principal component captures most of the variation in the data so we report the results for this component.

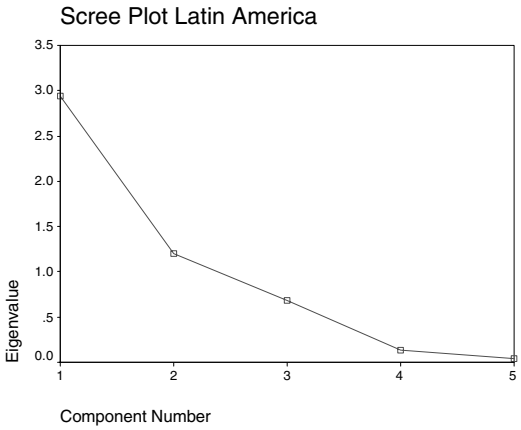
All the regions show commonality in the five components of capital flows. The first principal component loads on all components of flows, but the results are stronger for East Asia, Latin America and South Asia. This result only establishes the extent of co-movement. The multivariate technique of factor analysis is used to explain the relationship which may not be obvious here because principal component analysis takes the complete variance of the data into account. Factor analysis splits the explained variance into common and unique variance. Factor analysis can also be helpful in identifying sets of related variables.

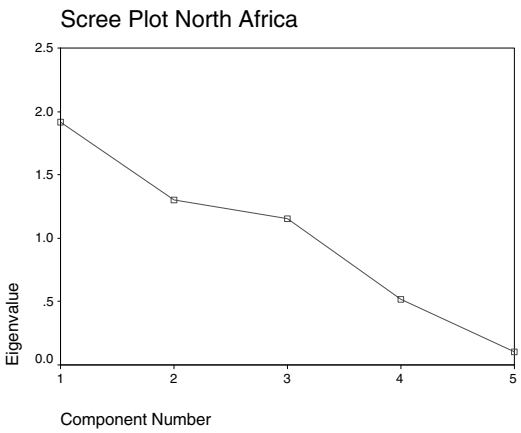
Chart 2 Scree plots by region











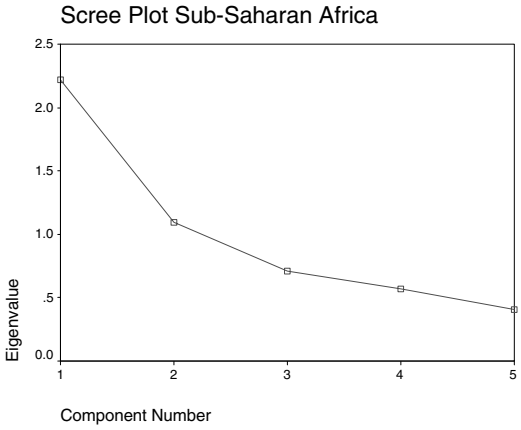


Table 2 Principal components of capital flows: commonality, factor loading and cumulated percentage of explained variation (CPV)

	East Asia Pacific		Europe & Central Asia		Latin America & Caribbean		North Africa & Middle East		Sub-Saharan Africa		South Asia	
	CPV=75.61%		CPV=53.03%		CPV=58.89%		CPV=38.35%		CPV=44.40%		CPV=53.44%	
	P1	C	P1	C	P1	C	P1	C	P1	C	P1	C
RKF	.83	.69	-.15	.80	.54	.53	-.25	.85	-.27	.76	-.51	.39
Bonds	.73	.53	-.36	.43	.86	.91	.66	.88	.67	.54	.56	.83
Equities	.83	.69	.90	.81	.60	.93	.84	.91	.73	.71	.68	.92
FDI	.97	.94	.94	.93	.85	.87	.66	.92	.75	.59	.93	.86
Debt	.96	.93	.90	.83	.92	.90	.54	.82	.78	.72	.89	.81

Notes: 1. Principal components are linear combinations of the original variables that explain increasingly higher proportions of the total variance of those variables and are measures of the association of each series with the first principal component.
2. In the underlying series for RKF a positive sign indicates a capital outflow.

P1 = First principal component
C = Commonality
CPV= Cumulative percentage of explained variation for the first principal component

4.1 Number of factors

The latent root criterion and the scree test are used to identify the optimum number of factors that can be extracted before the amount of unique variance begins to dominate the unique factor structure. The former is a simple rule to apply but depends upon the factor model chosen. For principal factor analysis an eigenvalue of greater than one is considered. The variances of the factors are more than the variance of the original variables, and hence contain more information than the original variables. For a small number of observations, there is a tendency for this method to extract a conservative number of factors; it was therefore not used as the sole criterion for extracting factors in this study (Hair et al., 1987, p. 247).

The scree plots provide an additional approach to identify the number of factors to be retained. (Cattell, 1966). They plot the eigenvalues against the number of factors, and the shape of the resulting curve is used to evaluate the cut-off point (see Chart 2). The scree plots result in at least one, and sometimes two or three or more, factors being considered as significant. This is more than with the latent root criterion (Cattell, 1966), thus balancing the choice.

Scree plots, eigenvalues and the hypothesis for this study were used to decide the number of factors. The conservative eigenvalue approach with two factors was retained for this study. Increasing the number of factor to three did not change the principal conclusions of this study.

4.2 Factor analysis options

The principal component model for factor analysis is recommended as the start solution. It is a factor extraction method used to form uncorrelated linear combinations of observed variables. The first component has maximum variance; successive components explain progressively smaller portions of the variance and all are uncorrelated with each other. This first solution gives us the eigenvalues, scree plots and the cumulated percentage of variance, which the other models explain. We then use the principal factor method, also known as principal axis factoring, which extracts factors from the original correlation matrix, with squared multiple coefficients placed in the

diagonal as initial estimates of commonalities. These factor loadings are used to estimate new commonalties that replace the old communality estimates in the diagonal. Iterations continue until the changes in the commonalties from one iteration to the next satisfy the convergence criterion for extraction (SPSS, version 10.0). The method implicitly assumes that a variable is composed of a common and a unique part, and that the common part results from the presence of common factors.

The objective is first to estimate the communalities and then to identify the common factors responsible for them and the correlation among the variables. In other words, this technique assumes an implicit underlying model (Sharma, 1996 p.108).

Further analysis is carried out by rotating the factors. Rotation of the factors is desirable because it simplifies the factor structure and improves the interpretation by removing ambiguities, which often accompany unrotated factor solutions (Mitchell, 1994). Two options are then available for specifying how factors are rotated and extracted. In orthogonal extractions, such as the varimax solution,[17] factors are extracted in such a way that the factor axes are maintained at 90 degrees, which results in each factor being completely independent of all other factors. In an oblique rotation, such as the promax solution, factors are not completely independent and some commonality is maintained. In the present study, the choice of method depended upon whether the domestic investment climate and external factors are independent of each other or whether some correlation exists between them. Both solutions were run. In the principal axis factoring solution, the correlation between the two common factors was checked to decide on the appropriate model.

4.3 Regional factor analysis results

Table 3 shows the results of the analysis for the six regions. The results presented are based on the varimax solution. The correlation between factors 1 and 2 was low, and independence between them could therefore be accepted.

The cumulative percentage of variance captured by the two factors in the initial principal component solution is given in the top two rows of results for each region. This variance is that which is explained by the factor model.

Factor loadings indicate the correlation between the variables and the factors so those variables that have a large loading on the same factors are grouped together. A factor loading value of 0.50 and above is considered good and very significant, 0.45 as fair and 0.32 and below as poor (Comrey, 1973). Hair et al. (1995) take a factor loading of + or – 0.30 to be significant and a factor loading of + or - 0.50 as very significant. The larger the absolute value of the factor loading, the more significant the loading is in interpreting the factor mix. Factors 1 and 2 explain the variance in the original series due to common factors, namely the investment climate and external factors. Uniqueness explains that part of the variance which is specific to the particular variable.

17 Quartimax rotation was rejected for the purposes of this research as this rotation focuses on rotating the initial factor so that a variable loads high on one factor and as low as possible on all other factors. In these rotations, many variables can load high or near the same factor because the technique centres on simplifying the rows. Hair et al. (1998, p. 109) point out the limitations of Quartimax in achieving the goals of rotation. Equimax, which is a compromise between quartimax and varimax rotation, tries to accomplish the goals of varimax and quartimax rotations. It has not gained widespread acceptance and is used infrequently. (ibid. p. 110)

4.4 Interpretation of the results

- The measure of uniqueness (1 - commonality) indicates that there are regional differences in interpreting resident capital flows from the six regions under investigation. East Asia stands out as a region where the uniqueness is very low, showing that the resident capital flows are not indicative of abnormal risks. This result is later checked for a sample of countries. While sub-Saharan Africa, South Asia and Latin America display high uniqueness, indicating the occurrence of resident capital flows because of abnormal risks, Eastern Europe shows that, although some of the resident flow is in response to abnormal risks, part of it can be grouped into the *normal* flow category as there is the right sign (although the loading is low). Since the sampling adequacy for North Africa was poor, but the scree plots were in order, one can only interpret the uniqueness for capital flight cautiously.

- The results for East Asia and Latin America, show two distinct groups emerging in the factor loadings. Factor 1 loads highly on debt, FDI, and resident capital and factor 2 loads highly on bonds and equities. Since the flows to the two regions have dominated the total flow to developing countries, it is plausible that factor 1 is capturing the investment climate and factor 2 external factors. This hypothesis needs validation by further research. In this paper, factors 1 and 2 are interpreted as capturing both investment climate and external factors without assigning labels to the two factors.

- In South Asia and sub-Saharan Africa the factor 1 loading for resident capital flow is small and the uniqueness high, indicating that abnormal risks may be more of a motivating factor for these flows. The negative sign of the factor loading indicates that an improvement in factors motivating normal flows results in inflows of resident capital, although this is only for a small fraction of resident capital flow. From the overall cumulative percentage of variance of 79% for South Asia and 66% for sub-Saharan Africa, explained by the two factors, the uniqueness of resident capital is 72% for South Asia and 86% for sub-Saharan Africa, indicating that the fraction captured by the first factor (normal component) is very small. It can therefore be inferred that the flow of resident capital is mainly caused by flight motives.

- In Latin America factor 1 loads highest on debt and foreign direct investment but within the acceptable range also on resident capital and bonds. The positive sign of the loading on resident capital indicates that resident capital flow is one side of a two-way flow. The direction of causality cannot be gleaned from this analysis. It should be noted that of 83% of the variation explained, 79% is due to abnormal factors and only 21% is covered by the two-way explanation of capital flows to arbitrage a risk differential.

- East Asia is the region that demonstrates the two-way flows of capital. In this region resident capital outflows are explained by the same factors that explain capital inflows, and here capital flow represents one-side of a two way capital inflow. Note that in the underlying data a positive sign for resident capital indicates a capital outflow. The direction of causality however cannot be read from this analysis. Our results indicate that resident capital outflow is one side of a two-way flow.

- In Eastern Europe, some part of the resident flows can be attributed to capital flight, since of the 76% variation explained by the model, 55% is due to the uniqueness of the flow indicative of capital flight.

Table 3 Results of factor analysis for the six regions

Latin America			
Factor	**Eigen Value**	**Cumulative % of variance**	
1	2.94	0.59	
2	1.20	0.83	
Type of Capital flow	**Factor 1**	**Factor 2**	**Uniqueness**
Resident Capital	0.43	0.07	0.79
Bonds	0.43	0.82	0.15
Equities	0.08	0.86	0.25
Foreign Direct Investment	0.96	0.13	0.07
Debt	0.92	0.31	0.05

Eastern Europe			
Factor	**Eigen Value**	**Cumulative % of variance**	
1	2.65	0.53	
2	1.15	0.76	
Type of Capital flow	**Factor 1**	**Factor 2**	**Uniqueness**
Resident Capital	-0.10	0.07	0.55
Equities	0.82	-0.00	0.33
Bonds	-0.25	-0.17	0.55
Foreign Direct Investment	0.93	-0.25	0.08
Debt	0.88	0.19	0.18

East Asia			
Factor	**Eigen Value**	**Cumulative % of variance**	
1	3.78	0.76	
2	0.95	0.95	
Type of Capital flow	**Factor 1**	**Factor 2**	**Uniqueness**
Resident Capital	0.94	0.10	0.11
Equities	0.37	0.86	0.12
Bonds	0.25	0.81	0.29
Foreign Direct Investment	0.89	0.45	0.01
Debt	0.89	0.42	0.02

South Asia			
Factor	**Eigen Value**	**Cumulative % of variance**	
1	2.36	0.47	
2	1.56	0.79	
Type of Capital flow	**Factor 1**	**Factor 2**	**Uniqueness**
Resident Capital	-0.32	0.42	0.72
Bonds	-0.03	0.91	0.17
Equities	0.68	0.36	0.41
Foreign Direct Investment	0.89	-0.36	0.09
Debt	0.87	0.11	0.23

Table 3 *continued*

Sub-Saharan Africa			
Factor	**Eigen Value**	**Cumulative % of variance**	
1	2.22	0.44	
2	1.10	0.66	
Type of Capital flow	**Factor 1**	**Factor 2**	**Uniqueness**
Resident Capital	-0.37	0.01	0.86
Equities	0.11	0.66	0.55
Bonds	0.47	0.33	0.67
Foreign Direct Investment	0.47	0.43	0.60
Debt	0.19	0.69	0.49

North Africa			
Factor	**Eigen Value**	**Cumulative % of variance**	
1	1.92	0.38	
2	1.30	0.64	
Type of Capital flow	**Factor 1**	**Factor 2**	**Uniqueness**
Resident Capital	-0.10	-0.08	0.98
Equities	0.83	0.28	0.24
Bonds	0.81	-0.07	0.34
Foreign Direct Investment	0.15	0.82	0.30
Debt	0.03	0.64	0.60

4.5 Results of factor analysis for selected countries

A sample of sixteen countries from the four regions were analysed further to check whether the regional interpretation also holds for individual countries in the region. The sample was chosen to cover countries with diverse experiences, and includes countries hit by crisis and contagion, those involved in debt initiatives and also non-crisis countries.

The MSA criterion for individual countries is shown in Table 4. The sampling criterion for Peru and the Philippines was outside the acceptable range of .50–80. This information was combined with the scree plots and accepted for analysis as the scree plot criterion was satisfied.[18]

Table 4 Kaiser-Meyer-Olkin measure of sampling adequacy (MSA) for selected countries

COUNTRY	MSA	COUNTRY	MSA
Argentina	.58	Korea	.72
Brazil	.51	Malaysia	.62
Chile	.61	Mexico	.47
China	.65	Nigeria	.53
Colombia	.56	Peru	.25
Ghana	.46	Philippines	.35
India	.53	Thailand	.55
Indonesia	.60	Uganda	.74

18 See Appendix 2 for scree plots. Initially more countries were included in for analysis but were dropped because of lack of sampling adequacy.

4.6 Factor analysis results

The results for individual countries are summarised in Table 5. As before, the eigenvalue, scree plots and CPV are from the original principal component solution showing how much of the variance is explained by factor analysis. The factor loadings are based on the varimax solution. As in the case of the regional analysis, it was found to be the most appropriate, as the correlation between factors 1 and 2 in the initial factor analysis solution was low. Further analysis proceeds on the finding that the two common factors explaining capital flows are independent variables.

4.7 Interpretation of the results

In the regional results the analysis for East Asia indicated that the uniqueness of resident capital outflows was low but with a positive sign revealing that, while the response to abnormal risks was missing, resident capital flows were one side of a two-way flow. However, analysis for a sample of countries in the region shows that the regional interpretation is true only for China and to a lesser extent Korea (see Chart 3 for a graphic representation of the uniqueness of resident capital flows for regions as compared with individual countries within those regions). Of the total variation of 85% explained by the model in China, the uniqueness of resident capital outflows is very low. Resident capital flight loads positively with other capital flows, indicating that it is one side of a two-way flow. In Korea, although the uniqueness of resident capital outflow is low, the relationship between FDI and resident capital flow is negative and therefore the two–way flow explanation is valid only for other capital flows. In China, the two-way explanation for FDI and resident capital flows is pronounced.

Chart 3 Resident capital outflows: regional and individual country measure of uniqueness

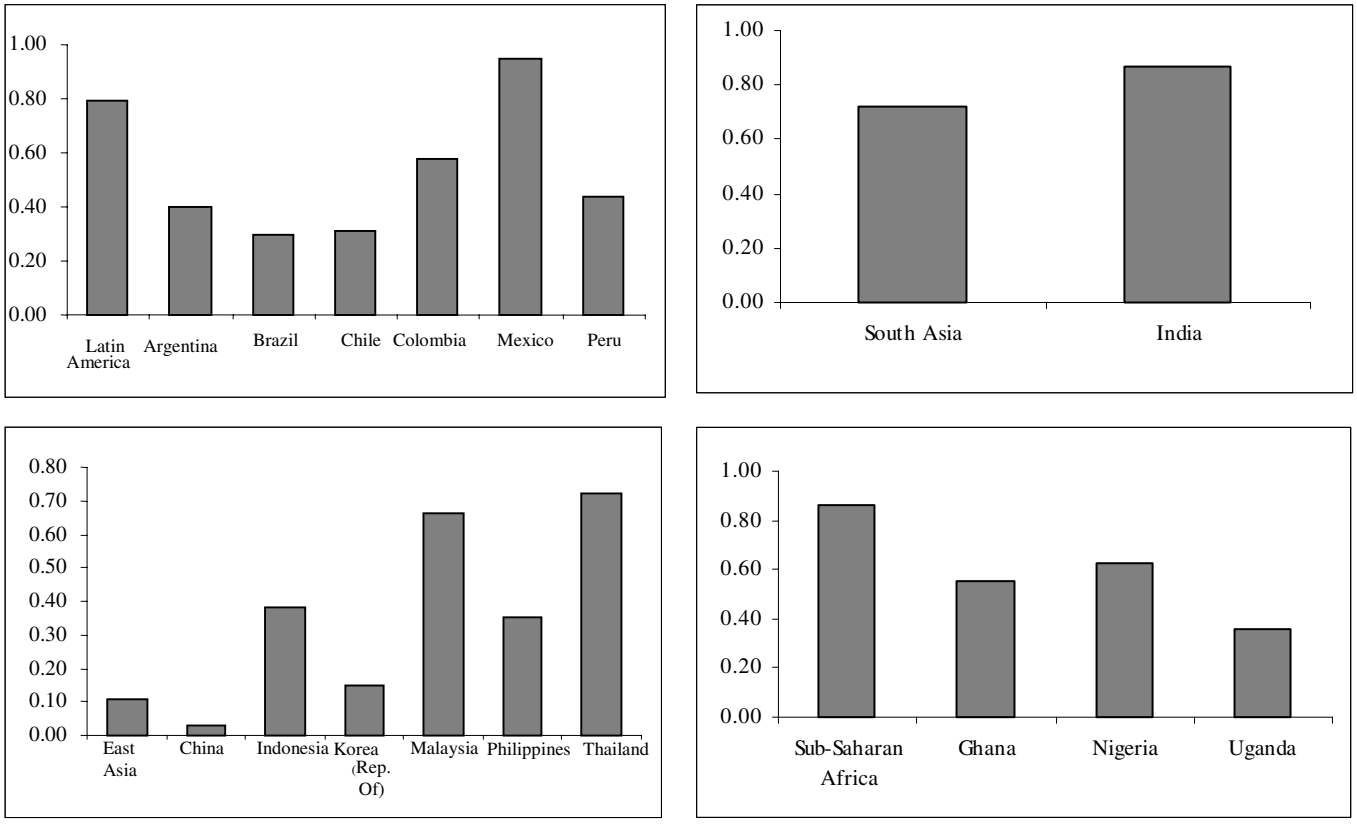


Table 5 Results of factor analysis for selected countries

LATIN AMERICA			
Argentina			
Factor	Eigen Value	% of variance	
1	2.69	0.054	
2	1.61	0.86	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	-0.09	0.77	0.40
Bonds	0.38	0.87	0.10
Equities	0.08	0.76	0.41
Foreign Direct Investment	0.90	0.06	0.18
Debt	0.91	0.19	0.13
Brazil			
Factor	Eigen Value	% of variance	
1	3.04	0.61	
2	1.24	0.86	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.57	0.62	0.30
Bonds	0.29	0.88	0.15
Equities	-0.05	0.67	0.55
Foreign Direct Investment	0.98	0.07	0.04
Debt	0.89	0.33	0.11
Chile			
Factor	Eigen Value	% of variance	
1	2.73	0.55	
2	1.50	0.85	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.75	0.37	0.31
Bonds	0.21	0.90	0.14
Equities	-0.29	0.64	0.51
Foreign Direct Investment	0.33	0.80	0.25
Debt	0.85	0.09	0.26
Colombia			
Factor	Eigen Value	% of variance	
1	2.60	0.52	
2	1.16	0.75	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	-0.03	0.65	0.58
Bonds	0.92	-0.23	0.11
Equities	0.20	-0.25	0.90
Foreign Direct Investment	0.92	0.14	0.13
Debt	0.76	-0.05	0.42
Mexico			
Factor	Eigen Value	% of variance	
1	2.57	0.51	
2	1.32	0.78	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	-0.16	0.15	0.95
Bonds	0.91	0.19	0.14
Equities	0.80	0.18	0.32
Foreign Direct Investment	0.02	0.97	0.06
Debt	0.39	0.91	0.02

Table 5 *continued*

Peru			
Factor	Eigen Value	% of variance	
1	1.97	0.39	
2	1.50	0.69	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.34	0.67	0.44
Bonds	0.33	-0.72	0.38
Equities	0.10	0.35	0.87
Foreign Direct Investment	0.88	0.17	0.19
Debt	0.89	-0.19	0.16

EAST ASIA			
China			
Factor	Eigen value	% of variance	
1	3.21	0.64	
2	1.05	0.85	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.93	-0.32	0.03
Bonds	-0.04	0.71	0.49
Equities	0.58	-0.04	0.66
Foreign Direct Investment	0.96	0.09	0.07
Debt	0.96	0.03	0.07

Indonesia			
Factor	Eigen value	% of variance	
1	2.67	0.53	
2	1.31	0.79	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.78	0.14	0.38
Bonds	0.28	0.83	0.24
Equities	-0.49	-0.02	0.76
Foreign Direct Investment	-0.07	0.80	0.36
Debt	0.64	0.70	0.10

Korea, Rep. of			
Factor	Eigen value	% of variance	
1	3.58	0.72	
2	0.77	0.87	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.30	0.87	0.15
Bonds	0.85	0.32	0.17
Equities	0.41	0.58	0.50
Foreign Direct Investment	-0.86	-0.34	0.14
Debt	0.36	0.87	0.12

Malaysia			
Factor	Eigen value	% of variance	
1	2.40	0.48	
2	1.29	0.74	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	-0.05	0.58	0.66
Bonds	-0.69	0.13	0.51
Equities	0.64	0.02	0.59
Foreign Direct Investment	0.84	0.21	0.25
Debt	0.46	0.54	0.49

Table 5 *continued*

Philippines			
Factor	Eigen value	% of variance	
1	2.54	0.51	
2	1.59	0.83	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.79	-0.18	0.35
Bonds	0.14	0.86	0.24
Equities	0.08	0.85	0.28
Foreign Direct Investment	0.76	0.25	0.36
Debt	0.97	0.20	0.03
Thailand			
Factor	Eigen value	% of variance	
1	2.50	0.50	
2	1.08	0.72	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.46	0.27	0.72
Bonds	0.80	-0.07	0.35
Equities	0.47	0.34	0.67
Foreign Direct Investment	0.04	0.72	0.48
Debt	0.73	0.54	0.17

SUB-SAHARAN AFRICA			
Ghana			
Factor	Eigen value	% of variance	
1	2.47	0.62	
2	1.01	0.87	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.10	0.66	0.55
Bonds	–	–	–
Equities	0.69	0.65	0.10
Foreign Direct Investment	0.92	0.26	0.08
Debt	0.71	-0.4	0.50
Nigeria			
Factor	Eigen value	% of variance	
1	1.46	0.36	
2	1.42	0.72	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	0.57	-0.23	0.63
Bonds	0.11	-0.46	0.78
Equities	–	–	–
Foreign Direct Investment	0.08	0.57	0.66
Debt	0.59	0.23	0.60
Uganda			
Factor	Eigen value	% of variance	
1	2.53	0.84	
2	0.30	0.94	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	-0.80		0.36
Bonds	–	–	–
Equities	–	–	–
Foreign Direct Investment	0.88		0.23
Debt	0.89		0.21

Table 5 *continued*

SOUTH ASIA			
India			
Factor	Eigen value	% of variance	
1	2.49	0.50	
2	1.24	0.75	
Type of Capital flow	Factor 1	Factor 2	Uniqueness
Resident Capital	-0.34	-0.14	0.87
Bonds	-0.09	0.86	0.26
Equities	0.83	0.01	0.31
Foreign Direct Investment	0.59	0.65	0.24
Debt	0.36	0.69	0.39

In Thailand and Malaysia the uniqueness is high, showing that resident capital outflows were motivated by abnormal risk and can be labelled as capital flight. Indonesia and the Philippines are indicative of both phenomena – abnormal risks and round tripping of flows.

These results indicate that regional analysis can fail to distinguish differences among countries, since there are variations in the behaviour of resident investors in the region indicating the differences in underlying investment climate and political and economic uncertainty. The interpretation of the regional results needs to be qualified at the country level. In any case, the results of the regional analysis are in all probability dominated by China which has the highest resident capital outflow from the region.

As a region, Latin America was indicative of capital flight and to a lesser extent round tripping of flows. The country analysis demonstrates that, in the period 1982-98, Mexico was highly indicative of capital flight because its uniqueness was the highest. The model reveals 78% variation in the data, 95% of which is uniqueness. This means that common factors explain very little of resident capital flows and that capital flight is being captured by the data set. Chile and Brazil are more indicative of round-tripping, together with some flows for abnormal risks. Argentina and Colombia are split more or less equally between round-tripping and abnormal flows. The results indicate that, as borne out by the crisis in December 1994, Mexico experienced a different response from resident investors compared with the other countries analysed. While the regional level was more indicative of abnormal risk, country-level analysis, with the exception of Mexico, provides a more mixed story with respect to round tripping and abnormal flows.

South Asia is dominated by India. The results for the region are the same as those for India. Of the 78% variation explained by factor analysis, 87% is due to abnormal risk.

In the sub-Saharan African region the results for Uganda indicate that, although the response to abnormal risks is evident, part of the return of capital is due to improvements in the domestic investment climate and/or external factors conducive to its return, Ghana and Nigeria are both indicative of abnormal flows as well as being one side of two-way flows.

The regional analysis for East Asia and Latin America showed a factor 2 load on bonds and equities. This was also visible in the results for Argentina, Brazil, Chile, Mexico, Korea, and the Philippines. Further research into the composition of capital flows is needed in order to verify whether this factor captures the investment climate or external factors in motivating this sub-section of capital movements.

5 Conclusion: Implications of the Findings

The results outlined in this paper are based on a descriptive technique and examine the nature of resident capital flows (RKF) by looking at the relationship between RKF and capital flight. The labelling of resident capital flows as either *normal flows* or *capital flight* was carried out by examining how far RKF could be explained by the same common factors as capital inflows into developing countries. If common factors are evident, and a negative sign is obtained for the loading on resident capital flows, the case is one of *normal flow*; otherwise the flow is labelled as *capital flight*. If, in the former category, a positive sign is obtained for RKF, it may also be a response to discriminatory treatment of domestic capital as well as a normal two-way flow in response to financial integration. The main conclusion to be drawn from this analysis is that, for many countries, two-way flows of capital are a likely explanation for a sizeable percentage of resident capital outflows because the same common factors explain both inflows and outflows of capital. Some countries clearly stand out in terms of abnormal risk, for example, India and Mexico, where resident capital flows cannot be explained by common factors. For most countries, the analysis gives a mixed explanation, as partly one side of a two-way flow and partly resident capital outflows. It is hoped that the results will spur further research in the area for the validation of these relationships.

Interpreting resident capital flows only as a response to abnormal risk is misleading, because it does not correctly explain resident investment behaviour. Although this study does not resolve the problem of quantifying capital flight in absolute magnitudes, the study shows different investor behaviour across regions and countries due to reasons other than capital flight. This has implications for the interpretation of risk. Observing resident capital flows alone does not give an indication of the economic and political instability in a country or region. Thus merely observing outflows does not provide justification for the reluctance of the international community to invest in these countries. The results indicate differences in abnormal risks in countries within a region and across regions.

The paper's findings point to differences in the split between abnormal flows and one side of two-way flows. Both of these are indicative of the differences in underlying factors. The results contain a message for foreign investors who tend to herd. This leads to contagion behaviour within a region by observing risk in one country and generalising the risk to the region as a whole. The differences in risk can be gauged by the differences in behaviour of resident investors. If we assume that residents have better access to information about their own economies they may possibly have an advantage over foreign investors in gauging risk. The statistical analysis in this paper is indicative of the differing risks in countries within each region. Contagion was experienced in Latin America after the crisis in Mexico in December 1994. Looking at the response of resident investors in the countries which experienced contagion, the differences in the uniqueness of resident capital flows demonstrate the differences in risk. An analysis of the behaviour of resident capital outflows shows that a certain type of risk in one country cannot be identified as the same risk for other countries in the region.

The results also have implications for policies dealing with the consequences of resident capital flows. Two-way flows are possible as a direct response to trade and financial market integration. This type of flow does not need any policy intervention, as such flows lead to an increase in welfare. When resident capital flow is one side of a two-way flow arising from asymmetric risk, the consequence is limited to erosion of the domestic tax base if the flow aims at arbitraging a risk differential. A capital inflow of one kind will be accompanied by an outflow of another kind, or a capital outflow will accompany a capital inflow, so that the net effect will be very small. Countries that provide guarantees and privileges to foreign investments need to remove the discrimination against domestic investors in order to avoid the erosion of the domestic tax base. Removal of

asymmetries should lead to an increase in welfare. Two-way flows are also conceivable in countries where excess capital inflows flow out again because of lack of absorptive capacity. The way forward is regulation of the inflow of capital in line with the absorptive capacity of the economy during the transition phase, while growth-enhancing policies and reforms take off and increase absorptive capacity in the long term.

Countries that are experiencing the abnormal type of flow need another approach to deal with the problem. The literature on capital flight contains several indications of what might be the way forward. A stable environment is a necessary pre-requisite for reversals of capital flight and repatriation of past capital flight. One recommendation is that policy announcements by the government should be in line with the long-term objectives of the country. It is very tempting for governments to adopt short-term expedient solutions, which give mixed signals to domestic investors. As a consequence, both private and public investment can deviate from the desired long-term lines of investment.

The credibility of the reform process is another issue discussed in the literature. If, for example, liberalisation of the capital account is carried out, with the risk of future reversal, a massive exodus of capital can be expected. Capital flight is a natural consequence. Frequent changes of government can also have an undesirable effect on the movement of resident capital. Even if political stability is acknowledged as desirable for keeping capital at home and for the long-term growth prospects of the country, governments still operate in the light of their own fears of overthrow and other political considerations. Therefore strengthening political institutions is one way of dealing with the capital flight problem.

On the macro policy front, it is generally accepted that central banks should avoid building up excessive international reserves, since overvaluation also causes capital to move out in anticipation of depreciation. Capital controls can be only a short-term solution to the problem of capital flight; the transaction costs of evasion go down over time so that in the long run the controls remain largely ineffective. Controls may not be so much of a solution; rather a fundamental attack on the roots of economic and political instability is needed.

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Appendix 1 Country groups

East Asia & Pacific (17)

Cambodia
China
Fiji
Indonesia
Korea, Republic of
Lao, PDR
Malaysia
Mongolia
Myanmar
Papua New Guinea
Philippines
Samoa
Solomon Islands
Thailand
Tonga
Vanuatu
Western Samoa

Europe & Central Asia (11)

Albania
Bulgaria
Estonia
Hungary
Malta
Poland
Portugal
Romania
Slovenia
Turkey
Yugoslavia (former)

Latin America & Caribbean (29)

Argentina
Barbados
Belize
Bolivia
Brazil
Chile
Colombia
Costa Rica
Dominica
Dominican Republic
Ecuador
El Salvador
Grenada
Guatemala
Guyana
Haiti
Honduras
Jamaica
Mexico

Nicaragua
Panama
Paraguay
Peru
St. Kitts & Nevis
St. Lucia
St. Vincent & Grenadines
Trinidad & Tobago
Uruguay
Venezuela

Middle East & North Africa (9)

Algeria
Djibouti
Egypt
Iran, Islamic Republic of
Jordan
Morocco
Oman
Syrian Arab Republic
Tunisia

South Asia (6)

Bangladesh
India
Maldives
Nepal
Pakistan
Sri Lanka

Sub-Saharan Africa (44)

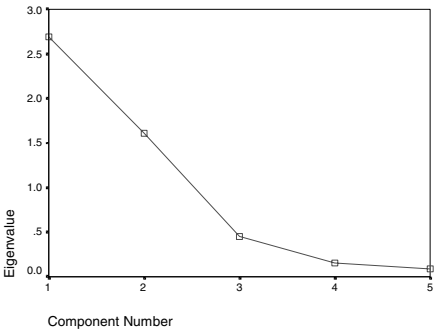
Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Congo
Côte d'Ivoire
Equatorial Guinea
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau

Kenya
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mauritius
Mozambique
Niger
Nigeria
Rwanda
Sao Tome & Principe
Senegal
Seychelles
Sierra Leone
Somalia
Sudan
Swaziland
Tanzania
Togo
Uganda
Zaire
Zambia
Zimbabwe

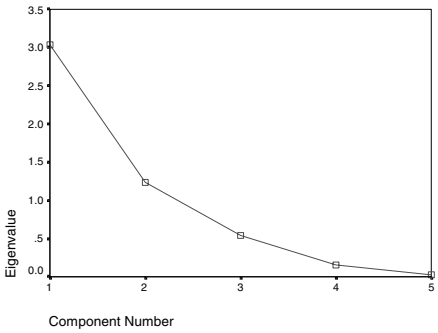
Total number of countries = 116

Appendix 2 Scree plot by country

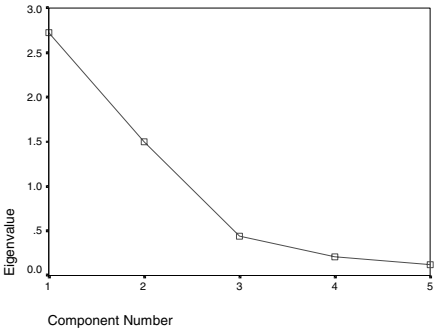
Scree Plot Argentina



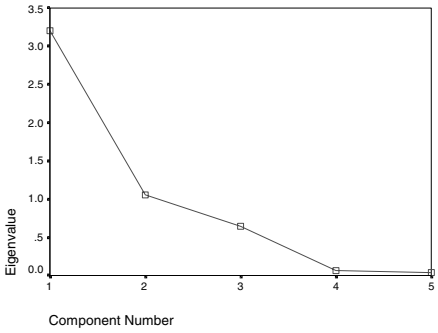
Scree Plot Brazil



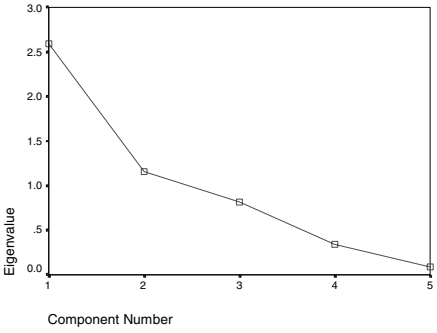
Scree Plot Chile



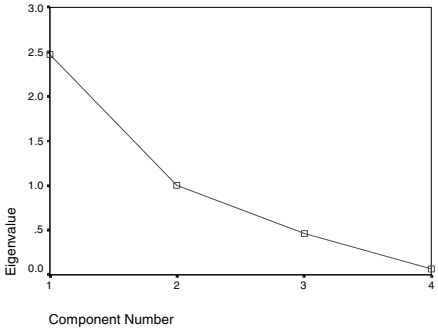
Scree Plot China



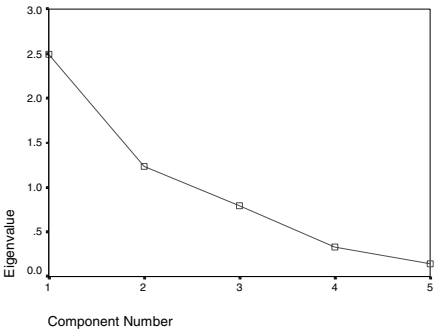
Scree Plot Colombia



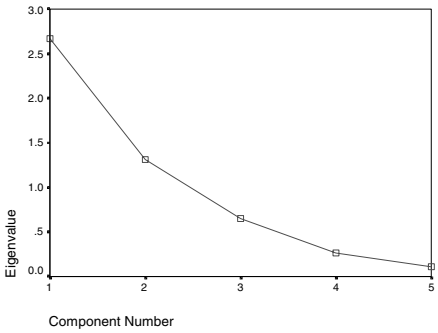
Scree Plot Ghana



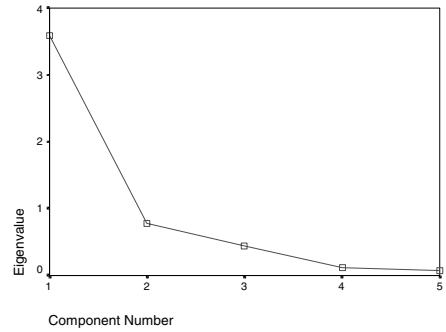
Scree Plot India



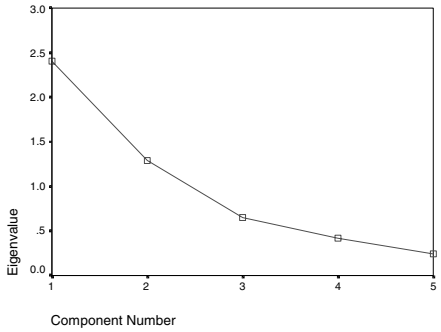
Scree Plot Indonesia



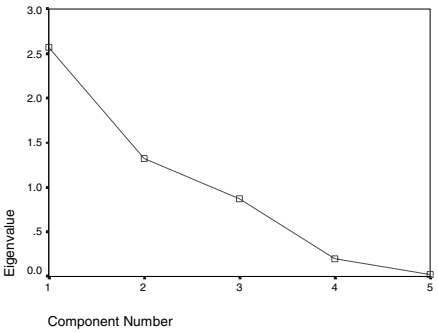
Scree Plot Korea, Rep. of



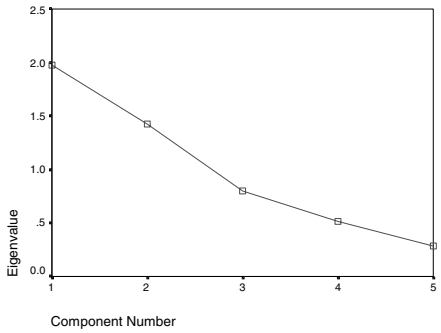
Scree Plot Malaysia



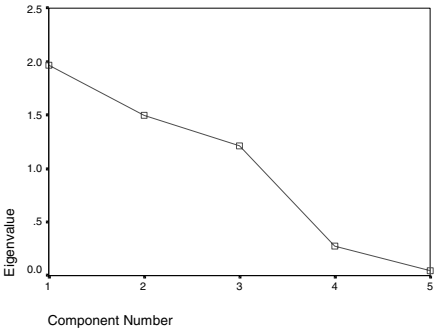
Scree Plot Mexico



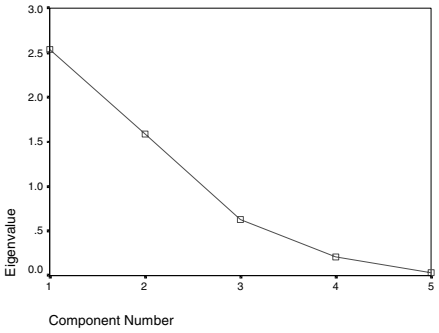
Scree Plot Nigeria



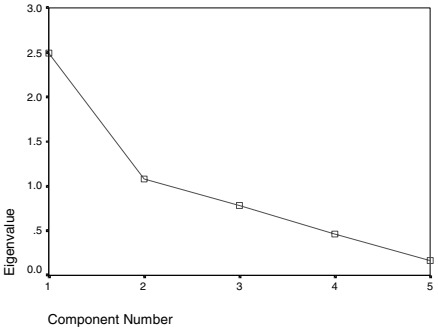
Scree Plot Peru



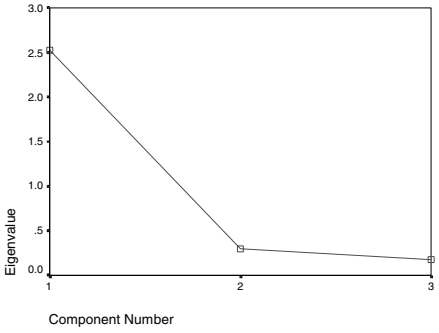
Scree Plot Philippines



Scree Plot Thailand



Scree Plot Uganda



Appendix 3 Data used for regional analysis

SOUTH ASIA					
	FDI	**Equities**	**Bonds**	**Debt**	**RKF**
1982	127.40	.00	9.50	48781.00	2343.00
1983	67.60	.00	18.70	53517.00	-41.30
1984	92.30	.00	232.10	54665.00	-3664.40
1985	164.10	.00	319.90	77907.00	18360.60
1986	143.40	192.00	279.70	78284.00	-4627.80
1987	176.60	.00	110.30	94195.00	10581.50
1988	220.40	56.00	665.00	102564.00	131.20
1989	189.90	168.00	678.40	110350.00	-877.30
1990	294.70	105.00	147.00	120991.00	4313.90
1991	387.40	22.60	1380.10	122898.00	-7328.90
1992	755.90	380.10	-205.90	133942.00	1629.80
1993	1109.30	2025.10	456.20	139734.00	-3199.50
1994	1488.80	6223.00	158.40	154106.00	6240.60
1995	2813.80	2340.40	294.20	155662.00	-1445.80
1996	3263.80	5197.90	-32.20	154687.00	-7230.80
1997	4807.70	2476.90	2294.20	153112.00	-5035.70
1998	2990.80	350.90	4185.40	158188.09	-2016.00
SUB-SAHARAN AFRICA					
	FDI	**Equities**	**Bonds**	**Debt**	**RKF**
1982	1261.14	-234.11	3.09	84787.00	-4354.49
1983	699.79	-985.94	408.01	94345.00	-63.00
1984	651.11	662.92	859.10	91854.00	-4812.66
1985	780.87	-105.46	1303.49	103025.00	12654.93
1986	422.19	-506.40	-103.55	119902.00	15235.43
1987	1018.38	9.42	904.48	145195.00	23360.02
1988	1073.09	12.62	446.39	137603.00	-11480.74
1989	2158.64	10.37	-394.78	145955.00	6553.73
1990	800.58	106.13	-319.29	161477.00	13261.01
1991	1751.22	-1685.94	552.25	158442.00	-9321.76
1992	-475.95	-166.16	2781.49	152532.00	-6419.79
1993	1267.36	893.80	599.64	151901.00	-4984.85
1994	1746.69	124.25	1528.93	156025.00	-3659.66
1995	1372.54	2538.62	2091.69	170673.00	5692.60
1996	3026.52	686.61	1450.77	163362.00	-6234.71
1997	4384.94	1643.20	4537.79	170923.00	-1843.21
1998	1648.18	3843.68	295.28	199765.59	-160.23
NORTH AFRICA					
	FDI	**Equities**	**Bonds**	**Debt**	**RKF**
1982	876.94	59.81	.14	86652.00	10296.23
1983	873.23	41.87	4.96	90151.00	3445.94
1984	1093.74	95.06	-3.29	94787.00	5263.52
1985	1493.37	35.95	14.44	110617.00	11863.75
1986	1444.71	39.04	-7.56	122743.00	5361.42
1987	1140.64	16.89	-6.74	138967.00	14845.86
1988	1445.76	8.86	-3.50	137933.00	-2806.24
1989	1566.59	15.80	2.11	143574.00	2923.55
1990	1171.58	1.13	16.14	136676.00	-4281.87
1991	678.95	32.34	24.49	131331.00	-14697.88
1992	1516.97	44.10	9.55	130102.00	-12373.55
1993	1795.16	43.59	-1.44	129179.00	-5853.54
1994	2522.98	244.68	1.02	140663.00	9032.55

	FDI	Equities	Bonds	Debt	RKF
1995	1301.88	32.00	22.11	145313.00	1743.55
1996	1444.39	170.57	539.86	143728.00	-1430.34
1997	2711.57	607.44	301.00	135318.00	-1552.25
1998	2503.93	-141.09	-377.00	143621.59	3383.15
LATIN AMERICA					
	FDI	**Equities**	**Bonds**	**Debt**	**RKF**
1982	6601.80	-27.30	4320.80	325336.00	22110.30
1983	5072.30	-19.20	668.20	341491.00	13179.40
1984	4160.10	-13.40	-151.90	351088.00	832.80
1985	5871.70	-19.20	-1779.10	370499.00	21730.40
1986	4094.60	1.80	-3101.10	393499.00	18024.10
1987	4965.90	59.10	-2198.90	419726.00	19008.40
1988	8155.30	189.30	3969.70	406132.00	-8624.70
1989	7560.80	514.30	1198.60	397798.00	-10803.90
1990	7070.90	2451.00	9626.90	389735.00	-14405.80
1991	11349.70	6946.80	9890.10	445739.00	39699.80
1992	12941.30	7750.30	31851.90	458112.00	-23335.10
1993	10809.20	21276.80	54361.20	496413.00	4617.70
1994	24631.30	14970.30	56606.80	549908.00	47717.10
1995	25434.40	5026.90	11467.20	576404.00	-2435.60
1996	39659.40	11260.10	39630.00	634537.00	44971.80
1997	56610.50	11895.70	23017.40	652146.00	6474.40
1998	62250.60	-5278.80	31390.80	739628.63	49919.60
EAST ASIA					
	FDI	**Equities**	**Bonds**	**Debt**	**RKF**
1982	2257.70	26.50	990.10	138970.80	7167.40
1983	2662.80	14.80	1131.40	162680.70	9367.00
1984	2754.70	34.30	405.00	167235.50	-2852.90
1985	1947.40	40.90	7562.40	196383.09	14841.50
1986	1903.60	96.10	1501.30	207676.80	6018.90
1987	3182.40	499.00	662.90	234517.59	30326.80
1988	6190.50	382.30	-497.00	235851.00	1858.40
1989	7994.20	1318.40	-681.00	233474.59	-9015.80
1990	9066.90	765.60	-1211.10	271703.00	25738.70
1991	11415.00	248.60	3253.00	307710.69	13222.60
1992	16301.70	2946.40	2709.10	343390.91	29786.50
1993	31801.30	10894.60	8811.30	382168.81	35580.40
1994	38556.10	4738.40	10211.80	462257.91	69041.20
1995	43346.60	7595.40	14156.70	554361.38	67709.70
1996	50049.70	10364.90	21361.40	629607.88	41825.20
1997	54856.50	6358.60	16460.00	675213.38	114074.70
1998	53539.20	685.10	-7367.30	637591.88	119870.30
EUROPE AND CENTRAL ASIA					
	FDI	**Equities**	**Bonds**	**Debt**	**RKF**
1982	221.41	3.23	147.58	80459.80	3260.38
1983	214.35	-10.10	123.62	86066.10	2715.94
1984	342.43	.62	149.39	82882.50	-4434.66
1985	384.33	-1.13	92.24	102074.30	19231.87
1986	379.29	3.68	590.06	114042.60	9601.57
1987	605.45	218.15	872.49	135554.00	22064.04
1988	1229.62	207.55	2746.16	126820.30	-4411.10
1989	2360.25	563.09	1815.01	129860.70	1171.54
1990	3267.75	463.84	1042.02	157085.00	19963.15
1991	4698.08	274.77	1998.31	153427.70	-2826.04

	FDI	Equities	Bonds	Debt	RKF
1992	4476.25	865.76	-1741.74	142894.41	-16509.99
1993	6552.48	900.36	10075.71	138287.00	-4377.24
1994	5478.11	1945.77	3415.29	149379.00	12792.42
1995	10004.99	144.57	-1341.47	154932.00	-8475.44
1996	8982.90	2286.74	-986.20	157916.00	-5236.54
1997	10070.12	3618.08	-108.69	158555.00	-11417.11
1998	10721.94	3323.73	-5016.57	213126.50	18715.27

Notes: Debt data are from the OECD. Resident capital flows are estimated by the author. Other capital flow data are from *International Financial Statistics*, IMF. The data for each region have been aggregated for the countries in each region listed in Appendix 1. Note that a positive sign for resident capital flows indicates an outflow.

Appendix 4 Correlation between components of capital flows by region, 1982–98

East Asia					
	RKF	Debt	FDI	Bonds	Equities
RKF	-	.89(.00)	.89(.00)	.32(.11)	.43(.04)
Debt	.89(.00)	-	.98(.00)	.57(.01)	.69(.00)
FDI	.89(.00)	.98(.00)	-	.57(.01)	.73(.00)
Bonds	.32(.11)	.57(.01)	.57(.01)	-	.81(.00)
Equities	.43(.04)	.69(.00)	.73(.00)	.81(.00)	-
Eastern Europe					
	RKF	Debt	FDI	Bonds	Equities
RKF	-	.08(.39)	-.29(.13)	-.10(.35)	-.08(.38)
Debt	.08(.39)	-	.82(.00)	-.23(.19)	.71(.00)
Bonds	-.10(.35)	-.23(.19)	-.19(.23)	-	-.25(.17)
FDI	-.29(.13)	.82(.00)	-	-.19(.23)	.79(.00)
Equities	-.08(.38)	.71(.00)	.79(.00)	-.25(.17)	-
Latin America and the Caribbean					
	RKF	Debt	FDI	Bonds	Equities
RKF	-	.42(.05)	.43(.05)	.31(.11)	.06(.42)
Debt	.42(.05)	-	.94(.00)	.65(.00)	.34(.09)
FDI	.43(.05)	.94(.00)	-	.51(.02)	.18(.24)
Bonds	.31(.11)	.65(.00)	.51(.02)	-	.79(.00)
Equities	.06(.42)	.34(.09)	.18(.24)	.79(.00)	-
North Africa and the Middle East					
	RKF	Debt	FDI	Bonds	Equities
RKF	-	-.29(.13)	.08(.38)	-.16(.27)	-.03(.46)
Bonds	-.16(.27)	.10(.35)	-.04(.43)	-	.64(.00)
FDI	.08(.38)	.48(.03)	-	-.04(.43)	.47(.03)
Debt	-.29(.13)	-	.48(.03)	.10(.35)	.05(.42)
Equities	-.03(.46)	.05(.42)	.47(.03)	.64(.00)	-
Sub-Saharan Africa					
	RKF	Debt	FDI	Bonds	Equities
RKF	-	-.05(.42)	-.20(.22)	-.21(.21)	-.00(.50)
Debt	-.05(.42)	-	.43(.04)	.30(.12)	.57(.01)
FDI	-.20(.22)	.43(.04)	-	.43(.04)	.33(.10)
Bonds	-.21(.21)	.30(.12)	.43(.04)	-	.29(.13)
Equities	-.00(.50)	.57(.01)	.33(.10)	.29(.13)	-
South Asia					
	RKF	Debt	FDI	Bonds	Equities
RKF	-	-.27(.15)	-.38(.07)	-.27(.15)	-.15(.28)
Debt	-.27(.15)	-	.74(.00)	.41(0.5)	.63(.00)
FDI	-.38(.07)	.74(.00)	-	.53(.01)	.59(.01)
Bonds	-.27(.15)	.41(0.5)	.53(.01)	-	-.09(.37)
Equities	-.15(.28)	.63(.00)	.59(.01)	-.09(.37)	-

Note: Numbers in parentheses indicate the significance level. For the years where there were no flows of a particular type, correlations are reported for the years available.

Appendix 5 Correlation between components of capital flows by country, 1982–98

Argentina					
	RKF	Debt	FDI	Bonds	Equities
FDI	-.06(.41)	.87(.00)	-	.40(0.6)	.13(.31)
Equities	.53(0.1)	.18(.24)	.13(.31)	.73(.00)	-
Bonds	.67(.00)	.54(.01)	.40(.06)	-	.73(.00)
Debt	.07(.39)	-	.87(.00)	.54(.01)	.18(.24)
RKF	-	.07(.39)	-.06(.41)	.67(.00)	53(.01)
Brazil					
	RKF	Debt	FDI	Bonds	Equities
FDI	.60(.01)	.92(.00)	-	.34(.09)	-.01(.48
Equities	.27(.15)	.26(.16)	-.01(.48)	.58(.01)	-
Bonds	.77(.00)	.53(.01)	.34(.09)	-	.58(.01)
Debt	.62(.00)	-	.92(.00)	.53(.01)	.26(.16)
RKF	-	.62(.04)	.60(.01)	.77(.00)	.27(.15)
Chile					
	RKF	Debt	FDI	Bonds	Equities
FDI	.49(.02)	.38(.07)	-	.84(.00)	.38(.06)
Equities	.07(.39)	-.24(.18)	.38(.06)	.54(.01)	-
Bonds	.51(.02)	.26(.16)	.84(.00)	-	.54(.01)
Debt	.74(.00)	-	.38(.07)	.26(.16)	-.24(.18)
RKF	-	.74(.00)	.49(.02)	.51(.02)	.07(.39)
China					
	RKF	Debt	FDI	Bonds	Equities
FDI	.87(.00)	.96(.00)	-	.03(.46)	.49(.02)
Equities	.61(.01)	.49(.02)	.49(.02)	-.01(.49)	-
Bonds	-.29(.13)	-.02(.47)	.03(.46)	-	-01(.49)
Debt	.89(.00)	-	.96(.00)	-.02(.13)	.49(.02)
RKF	-	.89(.00)	.87(.00)	-.29(.13)	.61(.01)
Colombia					
	RKF	Debt	FDI	Bonds	Equities
FDI	.10(.36)	.70(.00)	-	.86(.00)	.18(.25)
Equities	-.19(.23)	.20(.22)	.18(.25)	.19(.24)	-
Bonds	-.22(.20)	.72(.00)	.86(.00)	-	.19(.24)
Debt	-.04(.44)	-	.70(.00)	.72(.00)	.20(.22)
RKF	-	-.04(.44)	.10(.36)	-.22(.20)	-.19(.23)
Ghana					
	RKF	Debt	FDI	Bonds	Equities
FDI	.23(.19)	.66(.00)	-	-	.86(.00)
Equities	.52(.02)	.42(.05)	.86(.00)	-	-
Bonds	-	-	-	-	-
Debt	.08(.39)	-	.66(.00)	-	.42(.05)
RKF	-	.08(.39)	.23(.19)	-	.52(.02)
India					
	RKF	Debt	FDI	Bonds	Equities
FDI	-.29(.13)	.66(.00)	-	.55(.01)	.55(.01)
Equities	-.12(.34)	.60(.01)	.55(.01)	-.14(.30)	-
Bonds	-.30(.12)	.35(.84)	.55(.01)	-	-.14(.30)
Debt	-.19(.23)	-	.66(.00)	.35(.84)	.60(.01)
RKF	-	-.19(.23)	-.29(.13)	-.30(.12)	-.12(.34)

Indonesia					
	RKF	Debt	FDI	Bonds	Equities
FDI	.04(.44)	055(.01)	-	.67(.00)	.83(.38)
Equities	-.36(.08)	-.34(.09)	.83(.38)	-.21(.21)	-
Bonds	.29(.13)	.78(.00)	.67(.00)	-	-.21(.21)
Debt	.65(.00)	-	.55(.01)	.78(.00)	-.34(.09)
RKF	-	.65(.00)	.04(.44)	.29(.13)	-.36(.08)
Korea, Republic of					
	RKF	Debt	FDI	Bonds	Equities
FDI	-.56(.01)	-.59(.01)	-	-.88(.00)	-.58(.01)
Equities	.63(.00)	.65(.00)	-.58(.01)	.50(.02)	-
Bonds	.54(.01)	.61(.01)	-.88(.00)	-	.50(.02)
Debt	.90(.00)	-	-.59(.01)	.61(.01)	.65(.00)
RKF	-	.90(.00)	-.56(.01)	.54(.01)	.63(.00)
Malaysia					
	RKF	Debt	FDI	Bonds	Equities
FDI	.11(.34)	.53(.02)	-	-.64(.03)	.58(.01)
Equities	-.11(.34)	.37(.07)	.58(.01)	-.38(.07)	-
Bonds	.13(.31)	-.23(.19)	-.64(.03)	-	-.38(.07)
Debt	.37(.07)	-	.53(.02)	-.23(.19)	.37(.07)
RKF	-	.37(.07)	.11(.34)	.13(.31)	-.11(.34)
Mexico					
	RKF	Debt	FDI	Bonds	Equities
FDI	.10(.35)	.90(.0)	-	.20(.27)	.19(.24)
Equities	-.08(.39)	.48(.03)	.19(.24)	.80(.00)	-
Bonds	-.14(.30)	.54(.01)	.20(.27)	-	.80(.00)
Debt	.10(.35)	-	.90(.00)	.54(.01)	.48(.03)
RKF	-	.10(.35)	.10(.35)	-.14(.30)	-.08(.39)
Nigeria					
	RKF	Debt	FDI	Bonds	Equities
FDI	-.16(.27)	.27(.15)	-	-.32(.10)	.63(.00)
Equities	-.29(.13)	-.06(.42)	.63(.00)	-.06(.16)	-
Bonds	.20(.23)	-.05(.43)	-.32(.10)	-	-.06(.16)
Debt	.40(.06)	-	.27(.15)	-.05(.43)	-.06(.42)
RKF	-	.40(.06)	-.16(.27)	.20(.23)	-.29(.13)
Peru					
	RKF	Debt	FDI	Bonds	Equities
FDI	.33(.10)	.70(.00)	-	.22(.20)	.37(.07)
Equities	.06(.42)	-.28(.14)	.37(.07)	.03(.46)	-
Bonds	-.49(.02)	.38(.07)	.22(.20)	-	.03(.46)
Debt	.31(.11)	-	.70(.00)	.38(.07)	-.28(.14)
RKF	-	.31(.11)	.33(.10)	-.49(.02)	.06(.42)
Philippines					
	RKF	Debt	FDI	Bonds	Equities
FDI	.33(.10)	.80(.00)	-	.21(.21)	.28(.14)
Equities	-.07(.40)	.23(.18)	.28(.14)	.78(.00)	-
Bonds	.04(.44)	.34(.09)	.21(.21)	-	.78(.00)
Debt	.74(.00)	-	.80(.00)	.34(.09)	.23(.18)
RKF	-	.74(.00)	.33(.10)	.04(.44)	-.07(.40)

Thailand					
	RKF	Debt	FDI	Bonds	Equities
FDI	.26(.16)	.48(.03)	-	-.09(.37)	.25(.16)
Equities	.22(.20)	.58(.01)	.25(.16)	.35(.09)	-
Bonds	.40(.06)	.61(.01)	-.09(.37)	-	.35(.09)
Debt	.49(.23)	-	.48(.23)	.61(.01)	.58(.01)
RKF	-	.49(.23)	.26(.16)	.40(.06)	.22(.20)
Uganda					
	RKF	Debt	FDI	Bonds	Equities
FDI	-.72(.00)	.83(.00)	-	-	-
Equities	-	-	-	-	-
Bonds	-	-	-	-	-
Debt	-.74(.00)	-	.83(.00)	-	-
RKF	-	-.74(.00)	-.72(.00)	-	-

Note: Numbers in parentheses indicate the significance level. For the years where there were no flows of a particular type, correlations are reported for the years available.