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Capital Flight from the Countries in Transition:  
Some Theory and Empirical Evidence

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## Abstract

The first portion of this paper develops a simple framework that decomposes home demand for a domestic risky asset into a portfolio diversification incentive, a relative risk incentive, and a relative return incentive. It shows that capital flight may be caused by factors that increase the relative riskiness of the home asset or by structural distortions (such as financial sector inefficiency), which reduce the relative return of the domestic asset. The second portion of the paper provides empirical estimates of capital flight from Poland, Hungary, Czechoslovakia, and Russia for the 1988-93 period. The analysis concludes that the implementation of "shock therapy" reform programs has been accompanied by substantial capital flight. This has apparently occurred because such reform programs have initially generated *increased* economic and political uncertainty: prices have jumped toward world levels, property rights have been redistributed, and new institutions have been established. As these reform programs have progressed, however, the quantity of capital flight has declined. Hungary's experience is significantly different from that of the other three countries. Hungary pursued gradual reform and never experienced significant capital flight.

## **Capital Flight from the Countries in Transition: Some Theory and Empirical Evidence**

Nathan Sheets<sup>1</sup>

During the 1980s, the problem of capital flight received substantial attention. Despite this interest, capital flight has remained a particularly elusive phenomenon--both conceptually and empirically. The conceptual problems have existed because it is not immediately clear what differentiates capital flight from "normal" capital outflows. The empirical problems have been even more difficult. The quality of balance of payments data in developing countries is generally poor, and capital flight is often intentionally designed to avoid official detection.

The recent experience of the countries in transition has generated additional interest in this topic. Significant quantities of capital have fled the former communist countries in response to a variety of stimuli, including rapid inflation, negative real interest rates, and uncertainty surrounding property rights. These outflows have, unfortunately, occurred at a time when domestic investment has been urgently needed. Systemic transformation requires substantial amounts of capital to enhance public infrastructure, modernize antiquated machinery, and provide financing for emerging firms.

This paper examines the determinants of capital flight from the countries in transition and provides some empirical estimates of the magnitudes of these flows. Specifically, the first

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section of this paper develops a heuristic framework that decomposes domestic demand for a home and a foreign asset into a portfolio diversification incentive, a relative return incentive, and a relative risk incentive. This section also considers the potential impact of financial liberalization, following a period when a country has been segmented from world capital markets. The second section discusses a number of factors that have generated capital flight from the countries in transition, with a particular emphasis on property rights issues. The following two sections examine the strengths and weaknesses of three common measures of capital flight. The final section of the paper presents empirical estimates of capital flight from Poland, Hungary, Czechoslovakia and Russia for the 1988-93 period.

**An Axiom.** Throughout this paper, it will be taken as given that the countries in transition have low *quality-adjusted* capital-labor ratios relative to the industrial countries. This axiom rests on two observations. First, although physical capital may be abundant in the former communist countries, the quality of the capital is low. Second, the labor force in these countries is well-educated, suggesting that the effective labor input is high. These observations, taken together, suggest a low quality-adjusted capital-labor ratio.

### **Some Theoretical Considerations**

The literature examining capital flight has emphasized that the "normal" desire of investors to diversify their portfolios does not constitute capital flight (e.g. Cumby and Levich, 1987). Portfolio diversification arises from the fact that holding return constant, it is possible to reduce the variance of a portfolio by investing in several imperfectly correlated assets. Equivalently, diversification allows investors to achieve a higher return for a fixed level of risk.

Since foreign assets are likely to be imperfectly correlated with domestic assets, residents of a given country naturally desire to hold claims on assets in other countries. This desire may be particularly intense for residents of developing countries, where capital markets may be relatively undeveloped and illiquid.

Based on this discussion, capital flight will be defined in this paper as the subset of capital outflows that is due to excessive macroeconomic risk or structural distortions such as financial sector repression, distortionary taxation, and poorly enforced property rights. Capital flight reflects the effort of individuals to protect themselves from economic and structural instabilities. This section adapts a simple framework developed by Kouri (1978) and Dornbusch (1988), among others, to examine capital flight and differentiate between portfolio diversification incentives, return differential incentives, and relative risk incentives.

Consider an agent who allocates wealth between two risky assets. The first asset is available only in the home country, which is assumed to be a country in transition, and the second asset is sold only in world markets. The agent's utility function is constant relative risk aversion (CRRA) and takes the form  $U(\bar{W}_t, \sigma_p^2)$ . Utility is increasing in expected end of period wealth  $\bar{W}_t$  and decreasing in the variance of the portfolio's return  $\sigma_p^2$ . The agent invests a share of wealth  $\alpha$  in the domestic asset, which has expected return  $\bar{r}$  and variance  $\sigma^2$ . The remainder of wealth is invested in the world asset, which has expected return  $\bar{r}_w$  and variance  $\sigma_w^2$ . The covariance between the two assets is  $\sigma_{12}$ . The expressions for expected end of period wealth and the variance of the portfolio take the following form:

$$\bar{W}_t = (\alpha (1 + \bar{r}) + (1 - \alpha) (1 + \bar{r}_w)) W_t \quad (1)$$

$$\sigma_p^2 = (\alpha^2 \sigma^2 + (1-\alpha)^2 \sigma_w^2 + 2\alpha(1-\alpha)\sigma_{12}) \quad (2)$$

Solving the agent's optimization problem yields the demand function for the home asset (the agent's demand for the world asset,  $D_{2t}$ , is symmetric):

$$D_{1t} = \left( \frac{\sigma_w^2 - \sigma_{12}}{\sigma_p^2} + \frac{\bar{r} - \bar{r}_w}{\theta \sigma_p^2} \right) W_t \quad (3)$$

Theta is the coefficient of relative risk aversion. The properties of this demand equation are not surprising. Demand for the home asset rises linearly with wealth (reflecting the CRRA property),<sup>2</sup> falls with risk aversion, and rises with the difference between the world interest rate and the risk free interest rate. The first term of equation (3) reflects the demand for the home asset in the minimum variance portfolio, which is independent of risk aversion and relative returns. The second term of equation (3) describes the agent's willingness to accept increased risk in exchange for higher expected return.

**The Portfolio Diversification Incentive.** Consider a scenario where the expected return and variance of the domestic risky asset are equal to the expected return and variance of the world risky asset. Demand for the two assets can then be expressed as

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<sup>2</sup>Gordon and Levine (1988) observe that capital outflows will naturally rise and fall with wealth. For this reason, a period of significant economic growth may also be a period of significant capital outflows for reasons unrelated to risk or structural distortions. Equation (3) clearly supports this observation.

$$D_{1t} = D_{2t} = \frac{1}{2} W_t \equiv \bar{D}_t \quad (4)$$

Under these conditions, the demands for asset 1 and asset 2 are equal. Agents simply divide their wealth evenly between the two assets. (In a setting with multiple risky assets,  $\bar{D}_t$  will also depend on the covariances between the assets).

$\bar{D}_t$  may be given two complementary interpretations. First, it may be interpreted as the demand for the two assets in a long-run equilibrium where sound economic policies in the home country have ensured that the level of domestic risk is no higher than the world level, and capital has moved across national borders to equilibrate asset returns. Second, by definition  $\bar{D}_t$  represents the demand for each of the two assets when the expected returns and variances of the assets are equal. In this case, agents choose to hold both assets in their portfolios, since this allows them to achieve the world rate of return with a lower level of risk than if only one asset were held. This motivation to hold both assets is precisely the portfolio diversification incentive: agents obtain a lower level of risk for a given level of return.  $\bar{D}_t$ , therefore, also represents the pure portfolio diversification demand for each of the two assets. This interpretation of  $\bar{D}_t$  will be emphasized in this paper.

**Incentives for Capital Flight.** Now consider the general case where the expected returns and variances of the two assets differ. A first-order Taylor expansion of equation (2) around the world expected return and world variance allows the demand for the domestic asset to be written in terms of the portfolio diversification incentive discussed above ( $\bar{D}$ ), an expected return differential incentive, and a relative risk incentive:

$$D_{1t} \approx \bar{D}_t \left( 1 + \frac{1}{\sigma_w^2 - \sigma_{12}} \left( \frac{(\bar{r} - \bar{r}_w)}{\theta} - \frac{1}{2} (\sigma^2 - \sigma_w^2) \right) \right) \quad (5)$$

Given the definition of capital flight as capital outflows due to excessive macroeconomic risk and structural distortions, equation (5) suggests two channels through which capital flight may occur.<sup>3</sup> First, capital flight may result from macroeconomic and structural policies that increase the variance of the domestic asset, thus increasing the third term of equation (5) and reducing demand for the home asset. Second, although the countries in transition have relatively low *quality-adjusted* capital-labor ratios, suggesting relatively high marginal products of capital, financial sector inefficiency, heavy taxation, or loose monetary policy may break the link between the marginal product of capital and the returns on domestic assets. This reduces the second term of equation (5) and thus reduces the demand for the home asset. The following section will discuss these two channels in greater detail.

A related conclusion can be drawn from equation (5). In general, investors are not motivated by portfolio diversification incentives alone. Investors also consider relative returns and relative risks. Investors will base decisions solely on portfolio diversification incentives, only if return differentials and risk differentials do not exist. For this reason, portfolio diversification demand, although a useful analytical construct, is difficult to identify empirically. Moreover, equation (5) suggests that the *interaction* between asset characteristics is important. As portfolio diversification demand increases, investors are more sensitive to changes in relative returns and relative risk. This is the case because a larger portfolio diversification incentive

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<sup>3</sup>The discussion focuses on the case where  $\sigma_w^2 - \sigma_{12} > 0$ . This places an upper-bound on the degree of positive covariance between the two risky assets.



suggests larger baseline holdings of the asset and, hence, greater exposure to changes in risk and return.

**Dynamic Issues.** Until recently, the countries in transition were segmented from world capital markets. Within the context of the previous discussion, this suggests that all domestic wealth was held in the home asset and the portfolio share of the world risky asset was thus constrained equal to zero. During the course of financial liberalization, domestic investors have been allowed to hold various foreign assets. Financial integration may thus generate capital outflows, as domestic investors rebalance their portfolios to include foreign assets. The magnitude of these capital outflows is jointly determined by portfolio diversification incentives, interest rate differentials and relative risk. As such, these outflows are neither pure portfolio diversification capital nor pure capital flight.

**Foreign Investment.** Foreign investors are presumably solving a parallel optimization problem, constructing their portfolios based on the same considerations as domestic investors. For this reason, financial liberalization may be associated with an inflow of foreign investment, as foreigners rebalance their portfolios to include the domestic asset. However, just as high risk and repressed returns may generate capital flight, these factors may also inhibit foreign investment. In a "healthy" macroeconomy, financial opening should generate both capital inflows and outflows, as domestic investors and foreign investors seek to diversify their portfolios. (Whether this occurs in practice depends on numerous factors, including the degree to which reliable information on domestic financial assets is available to foreign investors.) If the macroeconomy is characterized by large relative risks and distortions, however, financial

opening will be followed by large capital outflows and limited capital inflows. This observation will be amplified later in the paper.

### **Causes of Capital Flight**

The previous section has drawn an analytical distinction between capital flight and portfolio diversification flows. Capital flight has been linked to increases in the domestic asset's relative riskiness and structural distortions that decrease the domestic asset's relative return. This section augments the previous analysis by outlining a number of specific macroeconomic instabilities and structural distortions that have tended to generate capital flight from the countries in transition. This discussion emphasizes the channels identified in the previous section, but the analysis is not limited to one particular model.

**Financial Sector Inefficiency.** The countries in transition generally have had inefficient and immature financial sectors. This has reflected both a lack of relevant human capital and the existence of incentive structures that have tended to subsidize inefficiency. For example, poorly developed bank supervision capacity has allowed banks to continue to rollover bad debt rather than declare balance sheet losses. Exacerbating this problem, governments have been willing to bail out insolvent institutions and have been reluctant to privatize banks and deregulate their financial sectors. As a result, financial institutions have often been sheltered from the market forces that motivate efficiency.

Financial sector inefficiency has tended to (1) increase the level of systemic risk in the countries in transition and (2) reduce the real return on domestic financial assets. Financial sector inefficiency has intensified systemic risk because inefficient financial institutions have also

tended to be unstable institutions. Financial sector inefficiency has reduced real returns on domestic assets because many financial institutions have not responded to market conditions. For example, during periods of accelerating inflation, banks have been slow to increase nominal interest rates on deposits. The resulting negative real interest rates have been a major cause of capital flight.

**Rapid Money Growth.** Rapid money growth has reduced the value of domestic currencies against goods and other currencies. This has resulted in inflation, exchange rate depreciation, and general macroeconomic instability. In response, residents have tended to purchase tangible goods and to hold foreign currencies and foreign assets in an effort to shield themselves from the declining value and increasing instability of the domestic currency.

This common formula for capital flight suggests a related observation. Rapid money growth and resulting macroeconomic instabilities do not determine the geographical location of where assets are held, i.e., given that a Russian citizen has chosen to hold dollars as a store of value, macroeconomic instability does not determine whether the dollars are held in Moscow or New York. Similarly, if real assets are bought as an inflation hedge, macroeconomic instability alone does not motivate the choice between real assets in St. Petersburg and real assets in Boston. For this reason, the discussion now turns to property rights issues.

**Poorly Defined Property Rights.** If property rights are poorly defined or the legal system is unable to mediate claims on property credibly and equitably, agents will move capital to less risky environments. Suppose, for instance, that agents fear that the government will change the existing structure of property rights--fear of expropriation is one example. Although individuals

are provided a certain set of property rights, they are concerned that in the future their rights will be limited or revoked. Another example is uncertainty concerning the taxation of firms.<sup>4</sup> Consider a manager deciding whether to invest in a project. Under the current tax structure, her project may be profitable. However, if the current structure lacks credibility, she may fear that future tax increases will reduce the profitability of the project. In such cases, domestic residents (and foreigners) will be hesitant to invest in the home country and foreign assets will be relatively attractive.

**Poorly Enforced Property Rights.** The previous section focused on the allocation of property rights between the government and the private sector; agents feared that the government would adjust property rights in a manner damaging to property owners. Another cause of capital flight may be the government's failure to enforce property rights between private parties. This is reflected in the inability to enforce contracts or the inability to prohibit individuals from taking physical control of property to which they have no legal right. For example, in Russia and other countries in transition, entrepreneurs are often forced to pay racketeers for "protection".<sup>5</sup> The weakness of the government, reflected in its inability to protect property rights and enforce contracts, substantially increases the riskiness of business ventures and thus reduces domestic investment.

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<sup>4</sup>Within this framework, taxes should be viewed as defining a firm's property rights with respect to its own profits.

<sup>5</sup>This also suggests that when the government is unable to enforce property rights, various unofficial institutions may evolve to fill the void.

**Property Rights Tension.** Schleifer (1994), drawing on Grossman and Hart (1986), distinguishes between a physical property right, which is physical control over a piece of property, and a legal property right, which is a claim supported by legal and governmental structures. When individuals have physical control over assets to which they do not have legal rights, a tension exists that provides incentives for capital flight. For example, individuals possessing physical property rights may move assets abroad before they are obliged to transfer the assets to those holding legal property rights. The following are several examples of this sort of conflict.

\* **Slowly changing property rights.** In the command system, politicians and managers exercised exclusive control over a variety of assets. Economic reform has entailed reassigning those control rights through privatization. Bureaucrats and others prominent in the old regime, however, have successfully moved assets abroad, exercising physical property rights before legal transfer could take place. For example, old-style managers in numerous firms have reportedly siphoned profits into foreign bank accounts before privatization has been completed. These stashes of hidden funds are referred to as "little red parachutes."

\* **Proceeds from Crime.** Property obtained from illegal activities clearly demonstrates the potential conflict between physical and legal property rights. The individual or organization that has engaged in the illegal activity exercises physical control over the property; however, his ownership is not supported by legal structures. Indeed, in the process of obtaining the property, he has violated legal structures. Strong incentives, therefore, exist to move the property beyond the control of domestic authorities, since

possession is evidence of guilt. Given the widespread criminality in many transition countries, these incentives may represent a significant cause of capital flight.

\* **Tax Evasion.** Suppose at "time 1" an individual controls all of a given asset, but at "time 2" the government will claim a portion of the asset as a tax. Taxation provides incentives for agents to hold assets beyond the jurisdiction of the authorities. Although these incentives exist in every economy, they are most intense when tax rates are particularly high and/or uncertain and when enforcement is particularly weak.

**Political Risk.** This term refers to uncertainty regarding the future course of government policy. It may encompass a wide range of factors, including fear of expropriation, concern about future inflation, uncertainty about the tax regime, and doubt concerning the government's commitment to reform. Although this term is admittedly broad, it efficiently summarizes a number of factors (including some discussed above) that contribute to capital flight.

One other issue should be mentioned. Cumby and Levich (1987) define capital flight as illegal capital outflows, and Walter (1987) implicitly defines capital flight as confidential or secretive outflows.<sup>6</sup> These definitions are appropriate to the extent that property rights concerns are the primary motivation for capital flight. If capital flight investors fear expropriation, desire to evade taxes, or seek to obscure earnings from illegal activities, they may attempt to place

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<sup>6</sup>Walter (1987) assumes that capital flight investors optimize over risk, return, and confidentiality. Agents will only "pay" for confidentiality (by accepting higher risk or lower return) if there is some meaningful anticipated cost of moving capital overtly. Walter thus implicitly defines capital flight as secretive outflows.

capital beyond the jurisdiction of domestic authorities and confidentiality will be critical.<sup>7</sup> In general, however, these confidentiality-based definitions are too narrow. Capital flight need not be surreptitious. For example, if investors are primarily attempting to shield themselves from macroeconomic instability and property rights tensions are not pronounced, then investors have little reason to exhaust resources concealing outflows from domestic authorities.

### **The Welfare Effects of Capital Flight**

The literature examining capital flight generally accepts as axiomatic the notion that capital flight reduces welfare in the home country. Revealed preference analysis suggests, however, that capital flight should leave at least some segment of society better off, namely, capital flight investors. The welfare effects of capital flight must, therefore, be asymmetric and redistributive: while capital flight investors are better off, it must be the case that the rest of society is not only worse off, but sufficiently worse off to outweigh the welfare gains of capital flight investors.

One channel through which this redistribution may occur is the following: capital flight tends to exacerbate already existing macroeconomic instabilities. For example, during a period of economic uncertainty, large capital outflows may destabilize the exchange rate. In addition, as capital leaves the country, the tax base may shrink, which limits the government's capacity to raise revenues and weakens the fiscal situation. Finally, if capital flight is funded by drawing

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<sup>7</sup>This implies that capital flight induced by property rights concerns may be particularly difficult to measure.

down domestic bank deposits, capital flight may jeopardize the soundness of the home country's banking system.

A second channel through which capital flight may reduce welfare is decreased domestic investment. If some portion of the capital that flees the country would have been invested domestically, in the absence of the flight-generating risks or distortions, then capital flight reduces domestic investment. Lower domestic investment may, in turn, reduce social welfare in at least two ways. First, lower domestic investment results in a lower capital-labor ratio, which reduces labor productivity and puts downward pressure on wages. Second, the pace of economic transformation in the countries in transition depends on the availability of capital to finance reform: emerging firms need funding to begin operations; existing firms need investment to modernize and expand their capital stocks; and the government needs capital to develop the physical infrastructure necessary to support a market economy. Capital flight, by definition, reduces the availability of domestic resources to finance these investments.

Two related observations deserve mention. First, capital flight does not occur exogenously. It may be one manifestation of ineffective macroeconomic policies. From this perspective, the fundamental question is not "what are the welfare effects of capital flight?" but "what are the welfare effects of the poorly defined property rights, financial sector inefficiency, and macroeconomic instability that often generate capital flight?" Second, when capital flight occurs in significant quantities, it may be interpreted as a vote of protest against a government's economic policies. Capital flight, in turn, may actually make those policies more difficult to maintain, thus helping to expedite reform. This is a potentially welfare-*enhancing* dynamic implication of capital flight.



## Approaches to Measuring Capital Flight

This section reviews several empirical measures of capital flight. There is, unfortunately, a significant gap between the conceptual analysis discussed above and the empirical approaches used to measure capital flight. This is true for two reasons. First, significant data problems exist. Balance of payments data for developing countries, particularly observations on capital flows, are incomplete and often inaccurate. Capital flight investors routinely evade detection by domestic authorities. Second, as discussed above, there is no clear procedure for distinguishing portfolio diversification flows from risk-induced or distortion-induced flows. While the distinction is conceptually important, it is difficult to implement empirically. This section evaluates the adequacy of three common empirical measures of capital flight.

**Definition 1: The "Hot Money" Measure.** A measure of capital flight proposed by Cuddington (1986) focuses on short-term capital movements. He observes that "the term 'capital flight' typically refers to short-term speculative capital outflows. It involves 'hot money' that responds to political or financial crises..." Cuddington measures capital flight as a (*judgmentally determined*) subset of short-term capital outflows plus the errors and omissions line from the balance of payments. The latter is included because, if capital outflows are conducted surreptitiously, they will only be captured (if they are captured at all) in errors and omissions.

This definition differentiates capital flight from portfolio diversification and other capital flows by implementing a strong identifying assumption: portfolio diversification corresponds to long-term outflows, while capital flight consists of short-term flows. This distinction may not be legitimate. If investors are sufficiently pessimistic about the domestic economic situation, or if inefficiencies are deeply ingrained in the economic structure, capital flight investors may

take long-term positions abroad. Additionally, the balance of payments differentiates short-term flows from long-term flows based on the maturity of the asset that is purchased. In practice, however, the distinction between short-term and long-term instruments is not well defined. Financial assets, regardless of maturity, are often liquid since they can be sold on secondary markets.

Cuddington's emphasis on short-term capital movements was apparently motivated by the Latin American experience with capital flight during the 1970s and 1980s. The World Bank's World Development Report 1985 notes that "an overvalued exchange rate--and the anticipation of a sharp correction" was the "the most common and important cause" of capital flight from these countries. Overvalued exchange rates and expectations of devaluation may motivate short-term capital flows.<sup>8</sup> Once the anticipated devaluation has actually occurred, agents have incentives to repatriate capital and repurchase domestic assets at devalued rates. Nonetheless, even in the Latin American case, restricting capital flight to short-term capital outflows is too constraining. Persistent macroeconomic instabilities, financial sector repression, structural inefficiencies, and fear of expropriation were also significant causes. These factors, which appear to play an even more important role in causing capital flight from the countries in transition, may contribute to long-term capital movements.

This measure also has empirical weaknesses. First, there is little rationale for assuming that the errors and omissions line in the balance of payments is exclusively, or even primarily, composed of short-term capital outflows. Errors and omissions may reflect a variety of current

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<sup>8</sup>As previously mentioned, however, short-term capital flows cannot be equated with purchases of short-term assets.

account and capital account transactions, including unrepatriated export earnings--probably the major vehicle of capital flight from Russia and other transition countries. Ironically, many of these transactions are not included in the conceptual definition of the "Hot Money" measure (since they are not short-term capital flows) but, nonetheless, are common capital flight vehicles. The errors and omissions line in the balance of payments may, therefore, capture a significant portion of capital flight, but for reasons unrelated to Cuddington's definition. Second, Cuddington admits that choosing the appropriate categories of short-term capital flows from the balance of payments requires significant discretion. In a study assessing Latin American capital flight, he notes that "a judgment on what to include in capital flight had to be made on a country-by-country basis . . . The object was to isolate short-term capital movements that might reasonably be considered capital flight." The *ad hoc* process of determining what to include as capital flight clearly jeopardizes the objectivity of this measure.

In the analysis that follows, the "Hot Money" measure will be defined to include "errors and omissions", as well as "other short-term capital, other sectors" and "short-term deposit money banks". The last category is included because banking sector outflows appear to be a significant channel of capital flight from the countries in transition.

**Definition 2: The Broad Measure.** A second measure of capital flight has been developed by a variety of researchers, including the World Bank (1985), Erbe (1985), Morgan Guaranty (1986), and Dooley, Helkie, Tryon and Underwood (1986). This measure calculates capital flight as the change in gross external debt (not including debt forgiveness), plus foreign direct

investment (FDI), less both the current account deficit and the change in official reserves.<sup>9</sup> A capital inflow may be used to finance the current account deficit, increase the stock of official reserves, or fund additional capital flight. This measure categorizes all domestic accumulation of foreign assets (except official reserves) as capital flight.

The Broad measure differs numerically from the "Hot Money" measure for at least two reasons (see Cuddington, 1986). First, the Broad measure explicitly includes both long-term and short-term capital flows. The "Hot Money" measure explicitly includes only short-term capital flows; however, it implicitly includes long-term flows to the extent that they are captured in errors and omissions. Second, the Broad measure is calculated using the change in the stock of gross external debt, generally obtained from World Bank data. The "Hot Money" measure depends on debt-creating flows (used in calculating errors and omissions), which are taken from the balance of payments tables of developing countries. Discrepancies between the stock of external debt and cumulative debt-creating flows often arise, reflecting various reporting inaccuracies and inappropriate netting of transactions in the balance of payments.<sup>10</sup>

The apparent weakness of the Broad measure is that it classifies all accumulation of foreign assets by the domestic private sector as capital flight; it does not seriously attempt to differentiate risk-induced outflows from portfolio diversification. Given the empirical difficulty

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<sup>9</sup>Morgan Guaranty also subtracts the increase in banks external assets from its measure of capital flight. However, as suggested above, there is no compelling reason that the accumulation of foreign assets by individuals constitutes capital flight, while the accumulation of such assets by the banking sector does not.

<sup>10</sup>The World Bank gross external debt data are generally viewed as more accurate than the debt-creating flows data, since the Bank cross-checks reports from developing countries with reports from industrial countries in deriving its estimates.

of distinguishing between various types of capital movements, however, this approach may be the most appropriate.

**Definition 3: The BIS Measure.** The third common measure of capital flight is the change in the stock of liabilities of BIS-reporting banks vis-a-vis a given country. In other words, using this definition, capital flight is the change in deposits of domestic residents in foreign banks. The major strength of this approach is that it does not rely on any balance of payments data.<sup>11</sup> This measure, however, has numerous weaknesses. First, since most central banks keep a portion of their reserves in foreign commercial banks, the BIS measure may include official reserves as well as private deposits. Second, capital flight investors attempting to evade domestic authorities may not truthfully disclose their nationality when registering accounts abroad.<sup>12</sup> Third, investors may choose to invest in a variety of financial instruments or real assets, rather than opening bank accounts.

A fourth measure of capital flight was proposed by Dooley (1986). He defines capital flight as the "stock of claims on nonresidents that does not generate investment income receipts in the creditor country's balance of payments data." He assumes that these assets do not generate investment income because of the owners' desire to keep the assets beyond the reach of domestic authorities. This desire, according to Dooley, is the defining characteristic of

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<sup>11</sup>Additionally, in the case of Russia and other FSU countries, standard balance of payments tables are only available starting in 1991. The BIS data are available for a much longer time series.

<sup>12</sup>The other two measures may also be sensitive to whether investors truthfully report their transactions, as will be shown in the next section of this paper.

capital flight. As discussed above, these confidentiality-based definitions may be appropriate to the extent that capital flight is generated by uncertainty concerning property rights; in general, however, such definitions are too narrow. Moreover, the assumptions necessary to actually calculate Dooley's measure are significant, and the data requirements are daunting--even for industrial countries with comparatively reliable capital flows data.<sup>13</sup> For these reasons, Dooley's measure cannot be reliably calculated for the countries in transition.

### Scope and Coverage of the Three Measures

The empirical work presented in this paper will focus on Poland, Czechoslovakia, Hungary, and Russia. The analysis is limited to these four countries because the available data, while admittedly of imperfect quality, are substantially better than for other transition countries. In the following discussion, it should be noted that each of these countries has current account convertibility. However, there are usually still significant limitations on capital account transactions, with the exception of in-bound FDI. Citizens of these countries are also allowed to own foreign exchange and to hold accounts in domestic banks denominated in foreign currencies. Domestic banks, in turn, are permitted to hold foreign currency accounts abroad.

This section examines specific types of capital outflows to determine whether they are classified as capital flight by each of the three measures. The "scenarios" considered in this

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<sup>13</sup>Gordon and Levine, for example, conclude that the Dooley measure "requires considerable faith" in the quality of the data that is used. They note that incomplete or inaccurate data "may result in large discrepancies between the estimated stock of resident assets held abroad and the actual stock. The data problems are exemplified by the finding that, as measured by [Dooley's definition], the summation of capital flight from Argentina, Brazil, Mexico, and Venezuela is smaller than the corresponding 'distortion-induced' capital outflows from either Japan or Germany over the period 1975 through 1985."

section correspond to common methods of capital flight from the countries in transition. This exercise is designed to assess the scope and coverage of the three measures. It will be shown that, to varying degrees, the accuracy of these measures depends on balance of payments conventions, the willingness of commercial banks to hold foreign currencies, and the maturity or type of asset that is purchased. None of these considerations is closely related to the conceptual definition of capital flight. In addition, the three measures also differ regarding what each classifies as capital flight, even when considering relatively stylized examples. Unfortunately, there does not appear to be any clear basis for choosing one of these measures over the others; all three have strengths and weaknesses.

**Scenario 1.** *A firm exports oil but does not repatriate the earnings. Instead, the earnings are used to purchase a 10-year corporate bond in New York.* Since most countries in transition have laws requiring exporters to repatriate earnings, it is reasonable to assume that the firm does not truthfully report its nationality when it buys the bond and that the firm does not report the purchase of the bond to domestic authorities. In this case, the transaction enters the balance of payments as a credit to exports offset by a debit to errors and omissions. The "Hot Money" measure classifies this as capital flight, due to the change in errors and omissions. The Broad measure also counts the transaction as capital flight, since it represents an increase in the current account surplus without an offsetting decline in official assets. The BIS measure does not include this as capital flight because deposits in BIS-reporting banks are unchanged.

**Scenario 2.** *A Russian firm underinvoices its exports, agreeing with the purchaser to put the difference between the true market price and the invoiced price in an account abroad. The firm*

*repatriates the invoiced export earnings, trading half to the Central Bank for rubles and depositing the other half in a domestic bank (which chooses to increase its dollar holdings in a foreign bank one-for-one). The firm leaves the uninvoiced earnings abroad.* This transaction has two components: a portion that is invoiced and a portion that is not invoiced. The invoiced portion generates a credit in current account exports with offsetting debits in official reserves and commercial bank foreign currency holdings. The "Hot Money" measure may count the increased dollar holdings of the commercial bank as capital flight, depending on whether they are classified as short-term assets. The Broad measure classifies the increased foreign reserves of the commercial bank as capital flight. The BIS measure counts this set of transactions as capital flight, since the commercial bank increases its dollar holdings in foreign banks. All three of the measures fail to detect the uninvoiced earnings, assuming that the firm does not truthfully report its nationality on the account abroad.

**Scenario 3.** *An individual trades domestic currency for dollars at a domestic commercial bank and puts the dollars under his mattress.* Two benchmark cases should be considered. First, if the bank trades all the rubles to the Central Bank for dollars, then this transaction affects the balance of payments as an errors and omissions outflow financed by a decrease in central bank reserves. This registers as capital flight under the "Hot Money" measure and the Broad measure, but the BIS measure does not count the transaction as capital flight. Indeed, if the Central Bank reduces its dollar holdings in foreign commercial banks, then the BIS measure detects capital *repatriation*. Second, if the domestic bank chooses to reduce its dollar holdings by the amount of the transaction, then the balance of payments registers an errors and omissions outflow financed by a decrease in the foreign currency holdings of banks. The "Hot Money"



measure now depends on whether the change in the bank's foreign currency holdings is classified as a short-term asset. If it is classified as short-term, then the two sides of the transaction offset and no capital flight is detected; otherwise, the "Hot Money" measure counts the transaction as capital flight. The Broad and BIS measures do not classify the transaction as capital flight. As before, the BIS measure may even register capital repatriation, if the commercial bank chooses to reduce its holdings in foreign banks.

*Scenario 4. A Polish citizen smuggles dollars out of the country in a suitcase and lies about her nationality when buying an asset in New York. All of the measures fail to detect this transaction, so it is not counted as capital flight. Ironically, the most striking examples of capital flight are often the most difficult to measure, since they are often surreptitious.*

### **Empirical Estimates of Capital Flight**

This section reports estimates of capital flight from Poland, Czechoslovakia, Hungary, and Russia for the period 1988-93 using the three empirical measures discussed above. The data employed in these estimates come from the IMF's Balance of Payments Yearbook 1994, International Financial Statistics, the World Bank's World Debt Tables 1994-95, and BIS quarterly reports. Balance of payments data for Russia are taken from Russian Economic Trends compiled by the Centre for Economic Reform.

Charts 1-4 (presented at the end of the paper) graph the three measures of capital flight for a given country. Tables 1-3 report the components of the "Hot Money" measure, the Broad measure, and the BIS measure for each country. Table 4 presents each measure's "cumulative estimate" of capital flight for the four countries; the cumulative estimate is a simple sum of the

annual estimates for the period under consideration. Tables 5-8 present inflation and interest rate data, and Table 9 reports the ratio of FDI to capital flight for the four countries. Finally, Table 10 reports data on real GDP growth.

Although the three measures sometimes diverge in their estimates, they suggest a generally coherent and reasonable story about capital flight from the countries in transition. Poland experienced substantial capital flight during 1990, the year of "shock therapy" stabilization, followed by a sharp decline as reform has progressed. In Czechoslovakia, capital flight surged in 1991 and (particularly) 1992, as the government implemented a stabilization program and the country prepared for the "velvet divorce." Hungary, by contrast, has experienced relatively little capital flight, paralleling the gradual course of reform. Finally, Russia has lost large quantities of capital since 1991, reflecting high and variable inflation, political uncertainty, and a relatively undeveloped banking system.

As mentioned above, Gordon and Levine have indicated that capital outflows may reflect economic growth or, in other words, increases in a country's wealth. Table 10, however, presents strong evidence that the estimates of capital flight reported in this paper are not driven by positive wealth shocks. In fact, the major episodes of capital flight from the countries in transition have occurred during periods when real GDP has declined sharply.

**Poland.** The three measures show a similar pattern for the period 1988-90: capital flight is relatively subdued in 1988 and 1989, followed by a surge in 1990. In late 1989 and early 1990, the Polish government introduced its "shock therapy" reforms, which included a 31.6 percent devaluation of the zloty against the dollar, price liberalization, and the institution of current account convertibility. These actions, coupled with the March 1989 creation of a private foreign

exchange market that was freely accessible to the public, represented substantial progress toward a market economy. Nonetheless, inflation for the twelve months ending March 1990 reached almost 1200 percent, and interest rates failed to keep pace with inflation (see Table 5). In addition, real GDP fell by 11.6 percent during 1990, generating fears that reform was being implemented too rapidly.

The "Hot Money" measure indicates that most of the capital flight from Poland during 1990 consisted of short-term banking sector outflows. The parallel movement of the BIS measure suggests that these outflows took the form of deposits by Polish banks in banks abroad. This may reflect an increase in foreign-currency denominated domestic bank accounts, probably in response to sharply negative real interest rates on zloty deposits. By December 1991, almost half of all bank deposits in Poland were denominated in foreign currency.

Following the spike in capital flight during 1990, the three measures detect a significant decline during subsequent years. Indeed, all three measures indicate that Poland has experienced some degree of capital repatriation. The BIS measure suggests that this occurred in 1991 and 1993; the Broad measure finds substantial repatriation during both 1992 and 1993. The "Hot Money" measure suggests a marked reduction in the quantity of capital flight from 1990-92 and repatriation in 1993. The decline (and even reversal) of capital flight during this period, which is detected by all three measures, parallels the decline in Polish inflation and progress toward economic reform.

The BIS measure estimates that cumulative capital flight from Poland for 1988-93 was \$4.3 billion, and the "Hot Money" measure finds capital flight of \$7.8 billion. The Broad measure estimates that capital flight for the period was \$2.8 billion; large outflows in 1990-91

are offset by large inflows in 1992-93. By way of reference, Polish GDP in 1990--the mid-point of the sample--was about \$65 billion, converted at market exchange rates.

**Czechoslovakia.** The most striking feature of Chart 2, which graphs estimates of capital flight from Czechoslovakia, is the surge in outflows between 1990 and 1992; this is particularly pronounced in the Broad and BIS measures. Czechoslovakia adopted a reform program similar in spirit to Poland's in January 1991. The implementation of these reforms, along with the associated uncertainty and economic tensions (see Table 6), apparently generated an increase in capital flight during 1991. Unlike Poland, however, capital flight from Czechoslovakia accelerated during the second year of reform, despite a drop in inflation and increasing real interest rates. These outflows can be linked to rising political instability, due to the impending "velvet divorce" (which occurred on January 1, 1993). Notably, all three measures detect a significant decline in capital flight during 1993, as both the Czech Republic and the Slovak Republic took further steps toward macro stabilization.<sup>14</sup>

The BIS measure estimates that cumulative capital flight from Czechoslovakia for the 1988-93 period was \$3.2 billion. The "Hot Money" measure estimates cumulative capital flight of \$3.4 billion, and the Broad measure places the figure at \$6.9 billion. Czechoslovak GDP, assessed at market exchange rates, was about \$40 billion in 1990.

**Hungary.** The Hungarians pursued a gradual approach to reform and did not experience much of the macroeconomic upheaval that accompanied reform in Poland and Czechoslovakia, e.g.,

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<sup>14</sup>The "Hot Money" and Broad measures of capital flight from Czechoslovakia in 1993 are the sum of estimates for the Czech Republic and the Slovak Republic. The BIS continued to report data for Czechoslovakia in 1993, without disaggregating.

the four-quarter inflation rate never exceeded 40 percent (see Table 7). Additionally, during the period under consideration, Hungary experienced exceptional political stability. For example, the same government was in power from May 1990 through May 1994. Apparently for these reasons, capital flight from Hungary was less pronounced than from the other three countries.<sup>15</sup> According to the "Hot Money" measure, cumulative capital flight from Hungary was -\$0.5 billion. The cumulative BIS measure is \$0.9 billion, and the cumulative Broad measure is \$1.3 billion. Hungarian GDP in 1990, converted at market exchange rates, was about \$33 billion.

**Russia.** The analysis of capital flight from Russia is severely hampered by inadequate data. Balance of payments tables, necessary to calculate the "Hot Money" measure and the Broad measure, are not available before 1991. The BIS measure is available for a longer time series, but it reports data for the former Soviet Union collectively and not Russia individually. As a result, the BIS measure may not be compatible with the other measures.

Chart 4 can be divided into two conceptually distinct periods. The first period is 1988-90; the second period is 1991-93. The BIS measure suggests that a significant *repatriation* of capital occurred during the first period. This is an interesting result that merits further examination. One possible explanation is "round tripping". Early in the reform process (1988-90), old-style managers repatriated assets from legitimate enterprise accounts. The managers then exploited their physical property rights to defraud the enterprises of assets, eventually investing the funds in personal accounts abroad.

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<sup>15</sup>Although the BIS measure and the Broad measure detect an increase in capital flight during 1991, the peak for Hungary is significantly lower than for the other countries and is largely reversed in 1992-93.

The behavior of capital outflows during the 1991-1993 period is more fully documented. Both the "Hot Money" measure and the BIS measure show a sharp increase in capital flight during 1992.<sup>16</sup> The increase in capital flight during 1992 may be linked to price liberalization that resulted in a 245 percent jump in the price level in January 1992, rapid money growth during the second half of the year, and sharply negative real interest rates (see Table 8). Significantly, the BIS measure suggests that capital flight slowed during the third and fourth quarters of 1993, as nominal interest rates were increased and inflation fell somewhat. By contrast, the "Hot Money" and Broad measures indicate that capital flight during 1993 remained at roughly its 1992 level.

The BIS measure estimates that capital flight from Russia totalled \$8.4 billion during 1991-93. However, significant capital repatriation during 1990 reduces capital flight for the entire 1988-93 period to \$2.7 billion. The "Hot Money" measure for 1991-93 totals \$25.2 billion for 1991-93, and the Broad measure for the same period is \$23.9 billion. Russian GDP in 1992 (the first full year of a market-determined exchange rate) was equivalent to about \$80 billion.<sup>17</sup>

**Foreign Direct Investment.** As discussed previously, progress toward financial liberalization by the countries in transition has created new opportunities for foreign investors to diversify their portfolios. This suggests the following observation: in the absence of macro instabilities

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<sup>16</sup>The Broad measure declines somewhat between 1991 and 1992, falling from \$9.4 billion to \$7.4 billion.

<sup>17</sup>This may significantly undervalue Russian GDP. Various estimates suggest that during 1992, the ruble's value was less than 20 percent of its purchasing power parity value.

and distortions, the financial opening of a given country should generate both capital inflows and capital outflows, as domestic investors and foreign investors seek to diversify their portfolios. However, if significant instabilities and distortions exist, capital outflows will be relatively large and capital inflows will be relatively small. Based on this observation, Table 9 presents the ratio of FDI to estimated capital flight for Poland, Hungary, Czechoslovakia and Russia for the period 1990-93.<sup>18</sup> The ratio of inflows to outflows can be interpreted as a rough indicator of the degree to which macro instabilities and distortions were present.<sup>19</sup> For example, FDI into Russia during this period was about 10 percent of estimated capital flight. The ratio was roughly 100 percent for Poland and 80 percent for Czechoslovakia. Conversely, FDI into Hungary was about five times larger than estimated capital flight. These results confirm earlier analysis suggesting that Hungary did not experience the disruptions endured by the other three countries. These results also suggest that macroeconomic difficulties have been particularly intense in Russia.

### Conclusions

The theoretical portion of this paper developed a simple framework that decomposed home demand for a domestic risky asset into a portfolio diversification incentive, a relative return incentive, and a relative risk incentive. It was shown that capital flight may be caused

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<sup>18</sup>These countries have not established full capital account convertibility. By 1990, however, they generally allowed and even encouraged FDI. For this reason, FDI is the appropriate measure of capital inflows.

<sup>19</sup>When capital flight registers negative values, suggesting capital repatriation, this ratio is not informative. If capital repatriation occurs, however, it can be safely concluded that the macro instabilities and distortions that generate capital flight are not present to a significant degree.

by factors that increase the riskiness of the home asset or by financial sector inefficiency, which breaks the link between the high domestic marginal product of capital and the return on the domestic asset. The discussion also noted that when a country that has been segmented from world capital markets takes steps toward financial integration, significant capital outflows may result as domestic investors seek to rebalance their portfolios. This rebalancing is not pure portfolio diversification, since it also depends on interest rate differentials and relative risks.

The empirical analysis has strongly supported these theoretical insights. Capital flight from the countries in transition has tended to occur during periods of high and variable inflation, negative real interest rates and political uncertainty. Significantly, the implementation of rapid economic reform--such as the programs pursued in Poland and Czechoslovakia--has been accompanied by substantial quantities of capital flight. This has apparently occurred because "shock therapy" economic reforms have initially generated *increased* economic and political instability: prices have jumped toward world levels, property rights have been redistributed, and new economic institutions have been established. However, as these reform programs have progressed, the quantity of capital flight appears to have declined. Hungary's experience is significantly different from that of the three other countries under consideration. Hungary pursued gradual reform and never endured significant capital flight; indeed, Hungary has received substantial capital inflows.

The empirical measures of capital flight can, unfortunately, shed little light on the role of property rights in generating capital flight. This appears to be the case for two reasons. First, as previously discussed, property rights conflicts are especially likely to induce capital outflows that cannot be detected. Second, it is difficult to quantify the existence or non-



existence of property rights. As a result, there is no clear procedure for relating property rights issues to observed capital outflows.

CHART 1  
Estimated Capital Flight from Poland

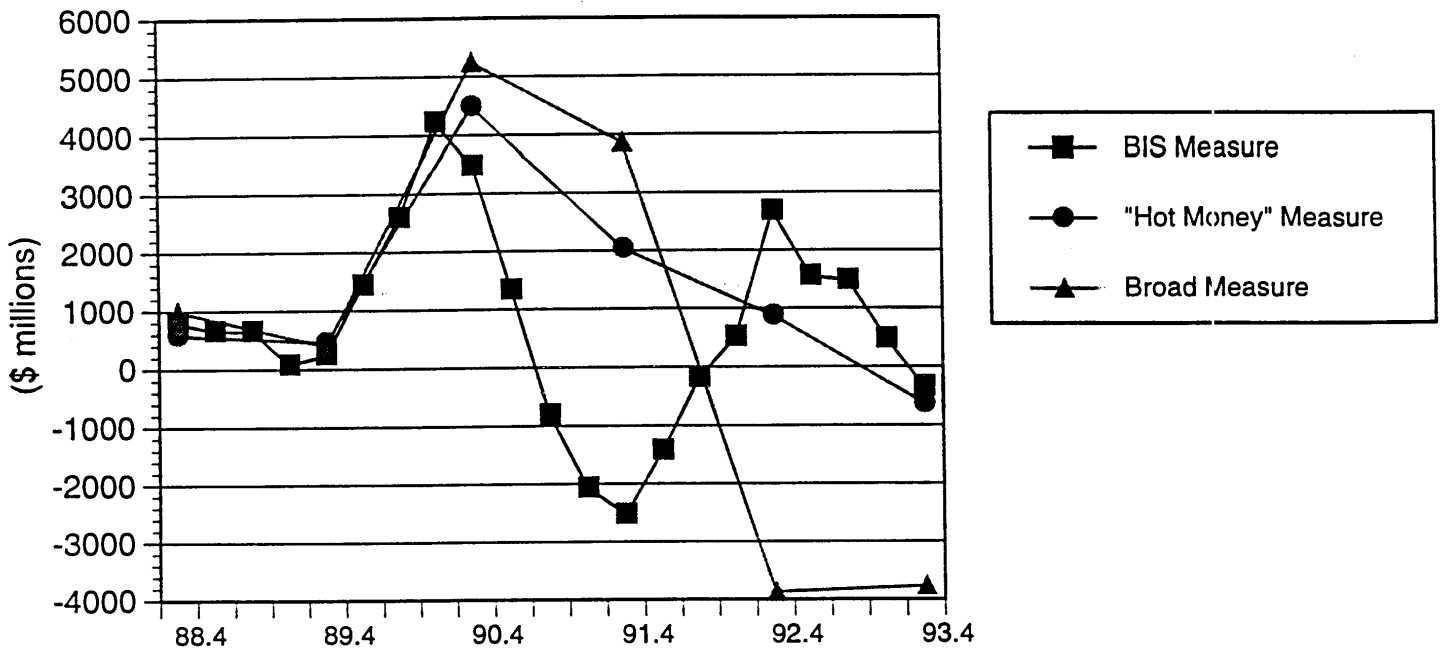
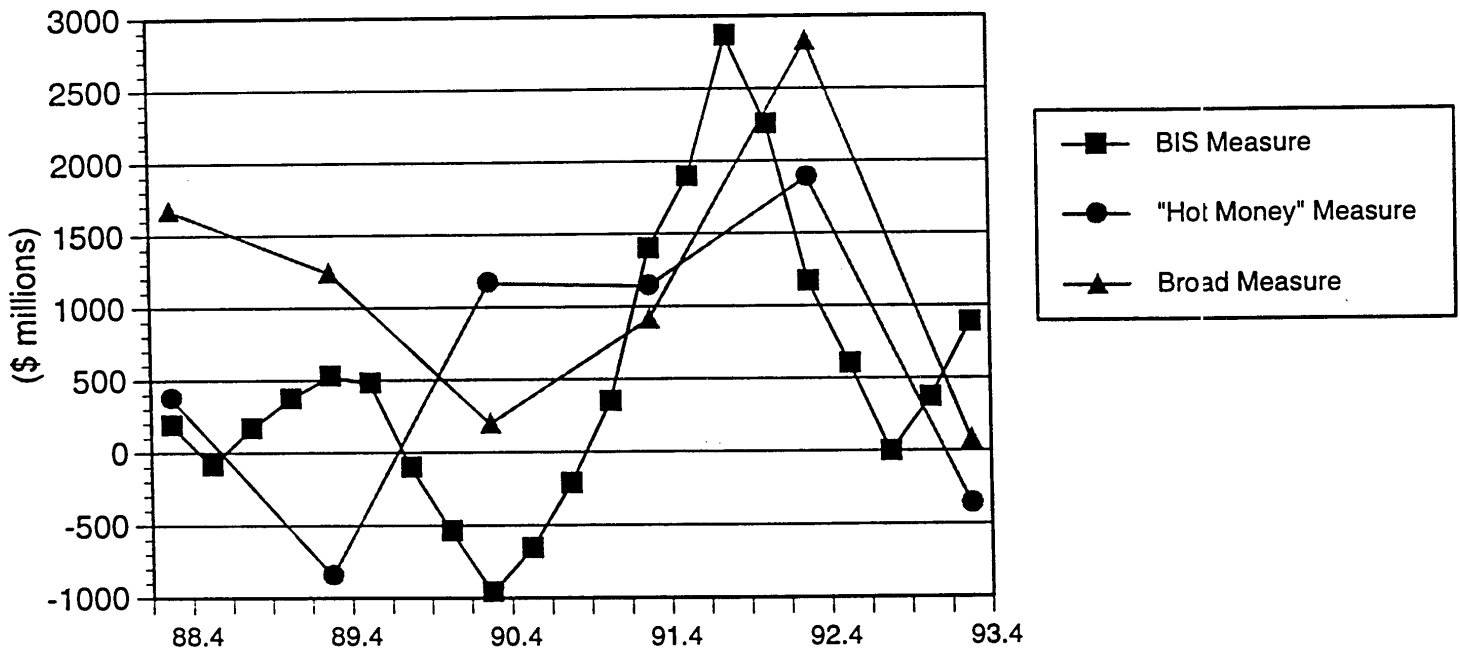


CHART 2  
Estimated Capital Flight from Czechoslovakia



Note: A point on the graph represents estimated capital flight for the year ending in the given quarter.

CHART 3  
Estimated Capital Flight from Hungary

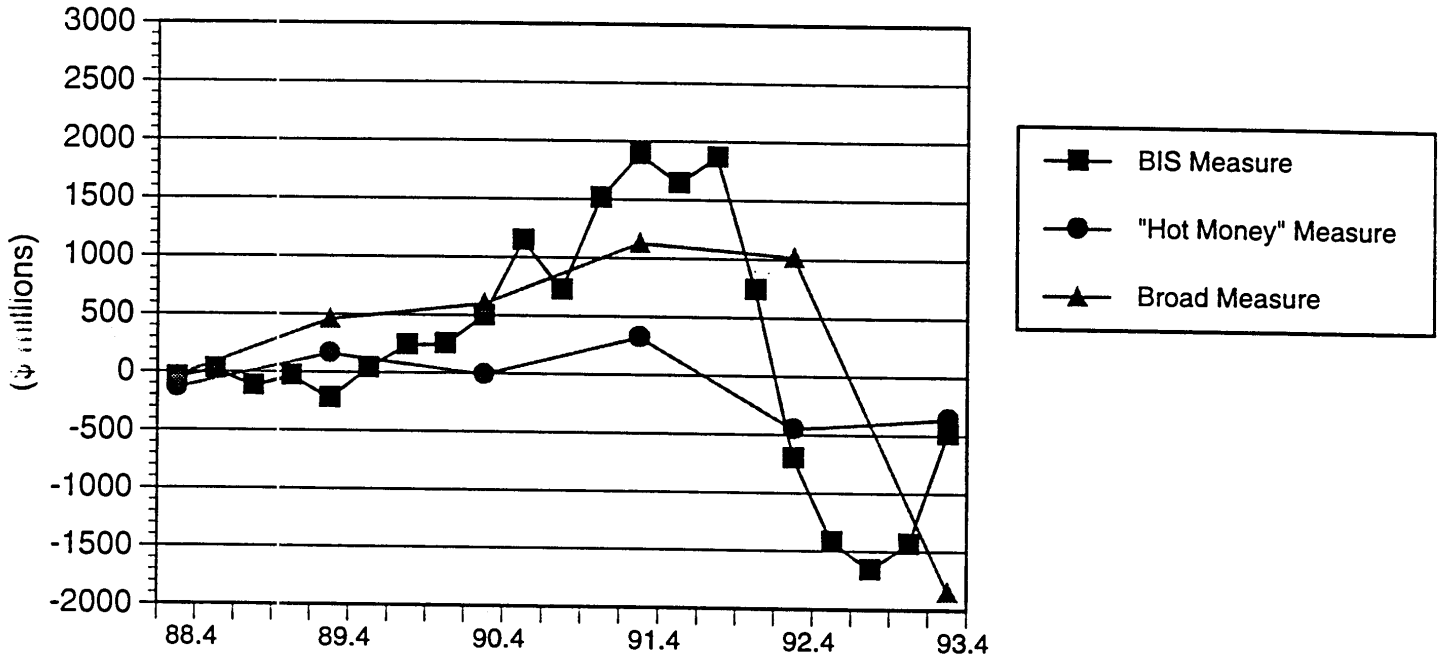
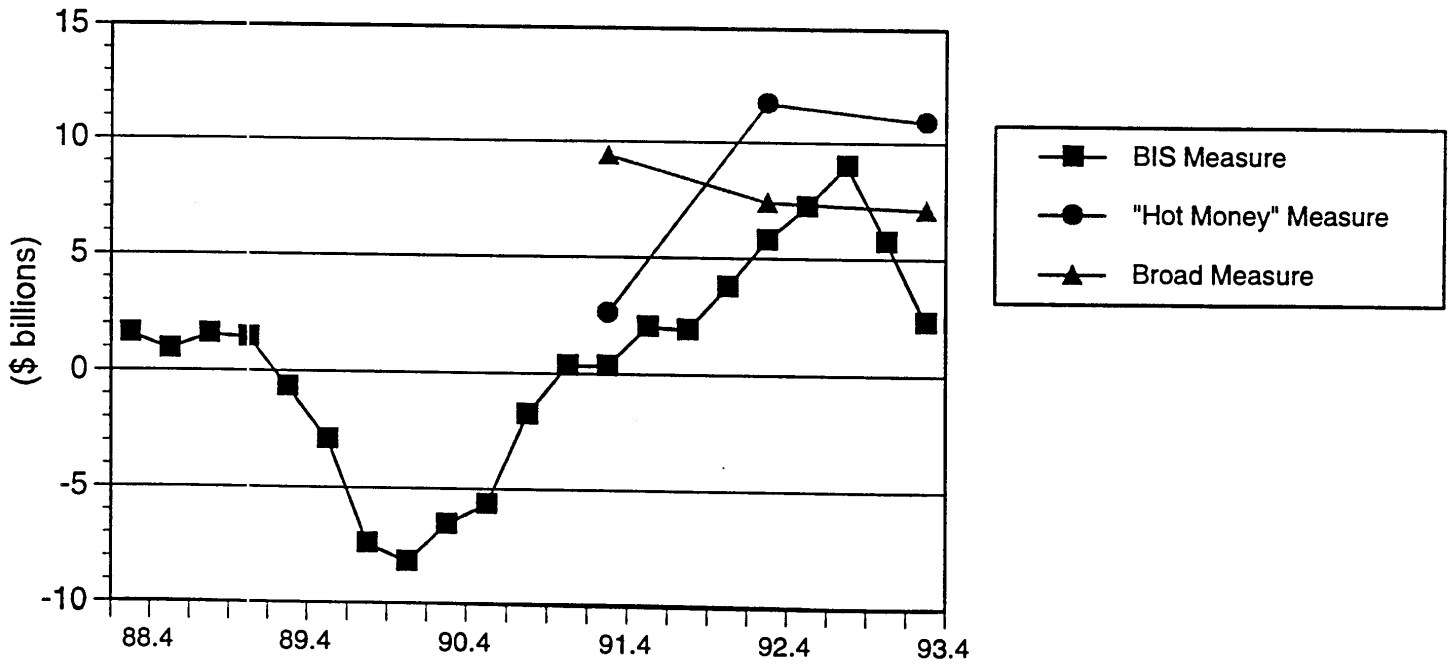


CHART 4  
Estimated Capital Flight from Russia



Note: A point on the graph represents estimated capital flight for the year ending in the given quarter.

**TABLE 1: The "Hot Money" Measure**  
(Millions SUS, Capital Outflow=-)

Poland	1988	1989	1990	1991	1992	1993
Errors and Omissions	-267	-110	133	-767	-148	-106
Short-term Capital, Other Sectors	-470	-172	-141	-61	-205	-75
Short-term Deposit Money Banks	158	-176	-4475	-1205	-519	813
<b>Estimated Capital Flight</b>	<b>-579</b>	<b>-458</b>	<b>-4483</b>	<b>-2033</b>	<b>-872</b>	<b>632</b>

Hungary	1988	1989	1990	1991	1992	1993
Errors and Omissions	50	-141	10	-82	2	724
Short-term Capital, Other Sectors	128	----	----	6	-138	-37
Short-term Deposit Money Banks	-43	-21	----	-243	588	-327
<b>Estimated Capital Flight</b>	<b>135</b>	<b>-162</b>	<b>10</b>	<b>-319</b>	<b>452</b>	<b>360</b>

Czechoslovakia	1988	1989	1990	1991	1992	1993
Errors and Omissions	207	563	-1127	789	-422	298
Short-term Capital, Other Sectors	188	286	-466	-780	-27	116
Short-term Deposit Money Banks	-768	-4	428	-1149	-1435	-50
<b>Estimated Capital Flight</b>	<b>-373</b>	<b>845</b>	<b>-1165</b>	<b>-1140</b>	<b>-1884</b>	<b>364</b>

Russia	1991	1992	1993
	(Billions \$US)		
Errors and Omissions	-1.9	-3.8	-5.5
Short-term Capital, Other Sectors	0	-1.4	-5.3
Deposit Money Banks	-0.7	-6.5	-0.1
<b>Estimated Capital Flight</b>	<b>-2.6</b>	<b>-11.7</b>	<b>-10.9</b>

Source: Data for Poland, Hungary and Czechoslovakia come from the IMF Balance of Payments Yearbook. Data for Russia come from the Centre for Economic Reform. Czechoslovak data for 1993 are the sum of data from Czech Republic and Slovak Republic.

**Table 2: The Broad Measure**  
(Millions SUS)

Poland	1988	1989	1990	1991	1992	1993
Exchange-Rate Adjusted Change in External Debt	1659	2056	3474	4531	-2876	-2089
Current Account Surplus	-107	-1409	3067	-2146	-3104	-5788
Foreign Direct Investment	0	0	89	298	665	1697
Change in Reserves (-=increase)	-561	-259	-1909	1175	-649	87
Debt Forgiveness	0	0	517	7	2092	2327
Estimated Capital Flight	991	388	5238	3865	-3872	-3766

Hungary	1988	1989	1990	1991	1992	1993
Exchange-Rate Adjusted Change in External Debt	694	1217	-192	1057	-42	2622
Current Account Surplus	-572	-588	379	403	352	-4262
Foreign Direct Investment	0	0	0	1462	1479	2339
Change in Reserves (-=increase)	-158	-172	413	-1795	-770	-2545
Estimated Capital Flight	-36	457	600	1127	1019	-1846

Czechoslovakia	1988	1989	1990	1991	1992	1993
Exchange-Rate Adjusted Change in External Debt	782	621	181	1505	-286	2765
Current Account Surplus	1093	936	-1227	908	-31	-118
Foreign Direct Investment	0	257	187	586	1073	517
Change in Reserves (-=increase)	-201	-574	1055	-2088	2070	-3088
Estimated Capital Flight	1674	1240	196	911	2826	76

The Broad Measure: Page 2

Russia	1991	1992	1993
	(Billions \$US)		
Exchange-Rate Adjusted Change in External Debt	4.8	13.1	5.6
Current Account Surplus	4.1	-5.1	3.9
Foreign Direct Investment	-0.1	0.7	0.9
Change in Reserves (-=increase)	0.6	-1.3	-3.3
<u>Estimated Capital Flight</u>	<u>9.4</u>	<u>7.4</u>	<u>7.1</u>

Source: External debt data come from the 1994-95 World Debt tables. Balance of payments data for Poland, Hungary and Czechoslovakia come from the Balance of Payments Yearbook. Balance of payments data for Russia come from the Centre for Economic Reform. Czechoslovak data for 1993 are the sum of data from the Czech Republic and the Slovak Republic.

**Table 3: BIS Measure**  
(Millions \$US)

	1988	1989	1990	1991	1992	1993
Poland	787	240	3479	-2528	2675	-345
Hungary	-51	-225	494	1885	-703	-489
Czechoslovakia	187	524	-963	1395	1164	883
Russia--Soviet Union	1572	-686	-6562	330	5774	2297

Source: BIS, International Banking and Financial Market Developments

**Table 4: Cumulative Capital Flight /1**  
(Millions \$US)

	BIS (1988-93)	"Hot Money" (1988-93)	Broad (1988-93)
Poland	4,308	7,793	2,844
Hungary	911	(476)	1,321
Czechoslovakia	3,190	3,353	6,923
Russia	2,725	25,200 /2	23,900 /2
<b>Total</b>	<b>11,134</b>	<b>35,870</b>	<b>34,988</b>

1/ "Cumulative Capital Flight" is the sum of annual capital flight estimates for each country, unless noted otherwise.

2/ Includes 1991-93 only.

**Table 5: Poland--Consumer Price Inflation and Interest Rates 1/**

Year.Qtr	Annual Inflation	Quarterly Inflation	Central Bank Rate	Bank Deposit Rate	Bank Lending Rate
88.1	43.4	17.3	6.0	-----	12.7
88.2	55.2	22.0	6.0	-----	18.0
88.3	61.4	7.9	6.0	-----	18.0
88.4	69.7	9.8	6.0	-----	18.0
89.1	75.5	21.3	44.0	-----	44.0
89.2	84.6	28.4	44.0	-----	44.0
89.3	186.2	67.3	56.0	-----	50.7
89.4	553.6	150.9	140.0	100.0	117.3
90.1	1196.8	140.6	120.0	48.0	260.0
90.2	1075.9	16.4	48.0	24.0	68.0
90.3	725.9	17.5	34.0	24.0	34.0
90.4	290.5	18.6	55.0	25.0	43.7
91.1	94.1	19.6	72.0	28.0	66.0
91.2	86.2	11.7	59.0	30.0	63.3
91.3	68.1	6.1	40.0	18.0	49.0
91.4	55.6	9.8	40.0	18.0	40.0
92.1	46.6	12.7	40.0	14.0	40.0
92.2	43.2	9.1	40.0	14.0	40.0
92.3	45.1	7.5	38.0	8.0	38.0
92.4	45.3	9.9	38.0	8.0	38.0
93.1	41.0	9.4	35.0	5.0	36.0
93.2	37.7	6.5	35.0	5.0	35.0
93.3	34.6	5.1	35.0	5.0	35.0
93.4	33.7	9.2	35.0	-----	35.0

1/ All data are percentages; interest rates are percent per annum (end of period).

2/ "Annual Inflation" is the change in the average price level between a given quarter and the same quarter the previous year. "Quarterly Inflation" is the change in the average price level between a given quarter and the previous quarter. "Central Bank Rate" is the rate charged by the central bank on advances to commercial banks for their temporary liquidity needs. "Bank Deposit Rate" is the rate on deposits of under one year with commercial banks. "Bank Lending Rate" is the minimum rate charged by commercial banks on unsecured loans and overdrafts. All data come from IFS.



**Table 6: Hungary--Consumer Price Inflation and Interest Rates 1/**

Year.Qtr	Annual Inflation	Quarterly Inflation	Central Bank Rate	Bank Deposit Rate	Bank Lending Rate
88.1	17.9	14.9	10.5	----	11.0
88.2	15.3	-0.9	10.5	----	11.0
88.3	15.0	1.8	10.5	----	11.0
88.4	17.1	1.1	10.5	----	13.0
89.1	14.3	12.1	10.5	----	14.0
89.2	17.4	1.8	10.5	----	14.0
89.3	17.8	2.2	10.5	----	14.0
89.4	18.4	1.5	14.0	----	17.0
90.1	24.3	17.7	14.0	----	17.0
90.2	26.1	3.3	18.0	----	21.0
90.3	29.9	5.3	18.0	----	21.0
90.4	32.4	3.4	20.0	19.1	28.0
91.1	33.9	15.1	27.0	22.7	30.0
91.2	34.8	7.1	27.0	23.9	30.0
91.3	35.8	4.8	27.0	24.0	30.0
91.4	32.6	2.6	26.0	24.8	29.0
92.1	26.2	9.5	26.0	24.3	28.0
92.2	22.8	4.3	22.7	22.3	24.0
92.3	20.5	2.8	20.9	15.8	22.0
92.4	22.6	4.4	20.0	13.9	21.0
93.1	24.7	11.3	19.0	13.2	20.0
93.2	21.7	1.8	19.0	11.8	19.0
93.3	21.8	3.0	22.2	13.2	22.0
93.4	21.1	3.8	22.2	15.4	22.0

1/ All data are percentages; interest rates are percent per annum (end of period).

2/ "Annual Inflation" is the change in the average price level between a given quarter and the same quarter the previous year. "Quarterly Inflation" is the change in the average price level between a given quarter and the previous quarter. "Central Bank Rate" is the base rate at which the central bank purchases commercial bills of exchange. "Bank Deposit Rate" is the average rate offered by commercial banks on deposits of less than one month. "Bank Lending Rate" is the average rate charged on commercial bank loans of less than one year to enterprises. All data come from IFS.

**Table 7: Czechoslovakia--Consumer Price Inflation and Interest Rates 1/**

Year.Qtr	Annual Inflation	Quarterly Inflation	Central Bank Rate	Bank Deposit Rate	Bank Lending Rate
88.1	----	----	----	----	----
88.2	----	0.0	----	----	----
88.3	----	0.0	----	----	----
88.4	----	0.6	----	----	4.7
89.1	1.1	0.5	----	----	----
89.2	1.3	0.2	----	----	----
89.3	1.6	0.3	----	----	----
89.4	1.5	0.5	----	----	5.2
90.1	3.4	2.4	5.0	2.6	5.4
90.2	4.0	0.8	5.0	2.7	5.4
90.3	14.1	10.0	5.0	2.8	5.6
90.4	18.4	4.3	8.5	3.3	7.7
91.1	55.1	34.2	10.0	7.6	15.8
91.2	68.4	9.4	10.0	8.2	15.6
91.3	56.3	2.1	9.5	8.6	15.0
91.4	52.1	1.5	9.5	8.0	15.0
92.1	16.4	2.7	9.0	8.6	14.0
92.2	7.7	1.3	9.0	6.9	14.1
92.3	7.8	2.1	8.0	6.6	14.0
92.4	11.6	5.1	9.5	6.6	13.4
93.1 3/	20.6	10.9	9.5	7.0	14.0
93.2	21.2	1.8	8.0	7.3	14.3
93.3	21.2	2.1	8.0	7.0	14.1
93.4	18.7	2.9	8.0	6.9	13.9

1/ All data are percentages; interest rates are percent per annum (end of period).

2/ "Annual Inflation" is the change in the average price level between a given quarter and the same quarter the previous year. "Quarterly Inflation" is the change in the average price level between a given quarter and the previous quarter. "Central Bank Rate" is the rate at which the central bank lends to commercial banks (this rate is used to rediscount bills of exchange). "Bank Deposit Rate" is the average rate offered by commercial banks on saving deposits. "Bank Lending Rate" is the average rate charged by commercial bank on all outstanding credits to enterprises. Data come from IFS.

3/ 1993 data are for the Czech Republic only.

**Table 8: Russia--Consumer Price Inflation and Interest Rates 1/**

Year.Qtr	Annual Inflation	Quarterly Inflation	Central Bank Rate	Bank Deposit Rate	Bank Lending Rate
1991.1	----	18.0	----	----	----
1991.2	----	71.2	----	----	----
1991.3	----	2.0	----	----	----
1991.4	161.0	26.7	----	----	----
1992.1	1266.9	518.0	21.0	28.3	56.4
1992.2	1190.1	61.6	117.8	75.5	135.5
1992.3	1614.1	35.5	117.8	92.3	181.3
1992.4	2521.1	93.7	117.8	112.9	216.7
1993.1	699.1	88.4	117.8	138.2	293.1
1993.2	732.7	68.4	277.3	197.1	349.0
1993.3	1062.0	89.1	492.0	253.0	509.1
1993.4	843.4	57.3	592.6	318.4	635.0

1/ All data are percentages; interest rates are percent per annum (end of period).

2/ "Annual Inflation" is the change in the average price level between a given quarter and the same quarter the previous year. "Quarterly Inflation" is the change in the average price level between a given quarter and the previous quarter. "Central Bank Rate" is the rate charged by the central bank on 3-month loans to commercial banks. "Bank Deposit Rate" is the average rate on deposits at commercial banks in the Moscow region. "Bank Lending Rate" is the average rate charged by commercial banks in the Moscow region on loans to private enterprises. Data come from IFS.

**Table 9: Ratio of FDI to Capital Flight (1990-93)**  
(Millions \$US)

	Poland	Hungary	Czechos.	Russia 1/
A) Cumulative FDI 2/	2,749	5,280	2,620	1,500
B) Cumulative Capital Flight Broad Measure 3/	1,465	900	4,009	23,900
C) Cumulative Capital Flight "Hot Money" Measure	6,756	-503	3,825	25,200
D) Cumulative Capital Flight BIS Measure	3,281	1,187	2,479	8,400
E) Ratio of Line A) to Line B)	188%	587%	65%	6%
F) Ratio of Line A) to Line C)	41%	-----	68%	6%
G) Ratio of Line A) to Line D)	84%	445%	106%	18%
H) Average of Lines E-G)	104%	516%	80%	10%

1/ Data for Russia include only 1991-93.

2/ "Cumulative FDI" is the sum of annual FDI from 1990-93, unless noted otherwise.

3/ "Cumulative Capital Flight" is the sum of annual capital flight estimates.

4/ The ratios in lines E)-G) are only meaningful for positive values of capital flight. (See footnote 19 in text.)

**Table 10: Growth of Real GDP**  
(Percentage Change)

	1989	1990	1991	1992	1993
Poland	0.2	-11.6	-7.6	1.5	3.8
Hungary	0.7	-3.5	-11.9	-4.3	-2.3
Czechoslovakia	1.4	-0.4	-14.3	-6.6	-1.8
Czech Republic	----	----	-14.2	-6.4	-0.9
Slovak Republic	----	----	-14.5	-7.0	-4.1
Russia	----	-2	-13	-19	-12

Source: EBRD Transition Report Update, April 1995. (Real GDP data for 1988 are not available).

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