

# Transparency and International Portfolio Holdings

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## ABSTRACT

Does country transparency affect international portfolio investment? We examine this question by constructing new measures of transparency and by making use of a unique microdata set on portfolio holdings of emerging market funds around the world. We distinguish between government and corporate transparency. There is clear evidence that funds systematically invest less in less transparent countries. Moreover, funds have a greater propensity to exit nontransparent countries during crises.

THE MERITS OF TRANSPARENCY HAVE RECENTLY been emphasized in the context of both corporate and government policies. In policy circles, transparency is seen as a way for countries to attract capital, reduce capital market volatility, and lessen the severity of financial crises. For example, it has been argued that during volatile times, international investors may be more likely to rush in and out of opaque countries (see International Monetary Fund (2001)). In the corporate finance context, there is a new literature emphasizing how earnings opacity affects equity returns (see, e.g., Bhattacharya, Daouk, and Welker (2003)). There is also some evidence that cross-country differences in corporate governance may be related to economy wide outcomes during financial market crises (Johnson et al. (2000)).

This paper examines whether and how the holdings of international investors are affected by country transparency and whether this effect becomes more pronounced during crises. So far, the effect of a country's transparency on the level of international portfolio investment has not been modeled explicitly. At the corporate level, Diamond and Verrechia (1991), among others, have argued that a reduction in informational asymmetry can increase the

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investment from large investors and reduce the cost of capital for the firm (see Healy and Palepu (2001), and Core (2001), for reviews of the empirical literature on corporate disclosure). In a different strand of the literature, a class of insider trading models suggests that “outsiders” will reduce their investment if they expect “insiders” to take advantage of them in trading (Ausubel (1990)).

Extrapolating from this literature would seem to imply that improving a country’s transparency could be expected to lead to an increase in investment inflows. However, there is little empirical evidence to support this hypothesis.<sup>1</sup> This paper aims to examine this question by constructing measures of transparency and by using a unique microdata set to assess the effect of transparency on portfolio allocations. In assembling the transparency indices, the article distinguishes between government transparency—including the timeliness and frequency of macroeconomic data availability and transparency in the conduct of macroeconomic policies—and corporate transparency in the availability of financial and other business information.

We find clear evidence that both government and corporate transparency have separate and distinct positive effects on investment flows from international funds into a particular country. In addition, during crises, capital flight is greater in the least transparent countries. This suggests that becoming more transparent is an effective way for countries to benefit from international financial integration while reducing its potentially unpleasant side effects.

In the first section of the paper, we describe the data used. Section II assesses the impact of country transparency on portfolio holdings. Section III examines the extent to which differences in country transparency explain portfolio flows during crises. Section IV contains concluding remarks.

## I. Data

Two sets of variables are key for our analysis. The first is a data set on investment positions by individual international funds across countries. The second set encompasses various measures of country transparency. We explain the two data sets in turn.

<sup>1</sup> There are several somewhat related empirical papers. There is a literature documenting the existence of a “home bias”—the tendency for investors to invest less in foreign equities relative to the prediction of a portfolio choice model (see, among many others, French and Poterba (1991), Tesar and Werner (1995)). Informational asymmetry between domestic and foreign investors has been hypothesized to be a possible explanation (Stulz (1981), Ahearne, Grierer, and Warnock (2001)). Portes and Rey (1999) examine the role of information in explaining cross-border volume of equity flows, though they do not look at any measure of transparency at the country level. Wei (2000) studies the effect of corruption on inward foreign direct investment and bank borrowing. Morck, Yeung, and Yu (2000) relate the comovement among stocks in different countries to the protection of property rights. Bhattacharya et al. (2003) study the effects of earnings opacity on equity returns across countries and over time. Du and Wei (2004) provide evidence that insider trading contributes to higher stock market volatility.

**Table I**  
**Total Holdings and Number of Funds by Region**

(holdings in billion U.S. dollars, December 2000)

	Total Number of Funds	Holdings in Asia	Holdings in Latin America	Holdings in Emerging Europe	Holdings in Middle East and Africa
Global emerging market funds	117	14.9	11.4	5.1	4.7
International funds	20	5.7	1.9	0.0	0.1
Regional	313	13.9	4.4	2.8	0.2
Single country	192	7.3	1.9	0.3	0.3
Total	642	41.8	19.6	8.2	5.3

Source: Authors' calculations based on data from *eMergingPortfolio.com*.

Note: Asset holdings do not include assets in developed markets. (International funds are the only class of funds in the sample with substantial holdings in mature markets.) Global Emerging Market and International Funds are used in the estimations.

### A. Data on Emerging Market Funds

We use data from a comprehensive database purchased from *eMergingPortfolio.com* (formerly Emerging Market Funds Research, Inc.). The database contains, on a monthly basis, the country asset allocation of individual equity funds with investments in emerging markets. The period covered is January 1996–December 2000.

Here, we focus on the groups of international and global emerging market funds. At the end of 2000, these encompassed 137 funds, managing US\$44 billion of assets in emerging markets.<sup>2</sup> About one quarter of the funds are closed-end funds. The funds are domiciled mostly in advanced economies and offshore banking centers. Table I provides an overview of the complete database.

The assets of the funds in our database represent a small but nonnegligible fraction of the total market capitalization. For example, in the case of Argentina, funds held approximately 5.6% of the total stock market capitalization in August 1998, while the share was around 2.5% in both Hungary and Korea. The total number of emerging economies in which funds had nonzero investments and for which data on stock market indices are available is 40.

While precise numbers on total equity flows are hard to obtain, a substantial fraction of all equity flows to emerging markets seems to occur through the funds in our database. For example, the World Bank (2003) estimates that in 1998, the total portfolio equity flows to developing countries amounted to US\$7.4 billion, compared to US\$2.5 billion flows (equivalent to about 34%) recorded in our database.

<sup>2</sup> The overall database is larger: for December 2000, the sample consists of 20 international funds (not exclusively focusing on emerging markets), 117 global emerging market funds (restricted to investing in emerging markets worldwide), 339 Asian regional or single-country funds, 92 regional Latin American funds, and 74 funds focusing on other geographic areas. See also Borensztein and Gelos (2003).

The providing company aims for the widest coverage possible of emerging market funds without applying any selection criteria. According to the data provider, the complete database covers roughly 80% of all dedicated emerging market funds, with a coverage of about 90% in terms of assets. When we inquired about the possibility of a selection bias, the provider stated that there is no clear characteristic (such as performance or size) that distinguishes those funds who agree to provide data from those that do not.<sup>3</sup>

### *B. Measuring (Lack of) Transparency*

We use the term transparency to denote the availability and quality of information, measured at the country level. In particular, we focus on two categories of opacity, governmental and corporate.

#### *B.1. Government Opacity*

On government transparency, we cover two separate aspects: data transparency and macroeconomic policy transparency. Our measure of macroeconomic data opacity is based on indices developed by the International Monetary Fund (IMF) on the frequency and timeliness of macroeconomic data dissemination by national authorities. The IMF conducted surveys in 1996, 1997, and 2000 on the data compilation practices of 180 countries. The surveys indicate which of 12 different economic data series are regularly compiled, the frequency of compilation, and the reporting lags (see Allum and Agca (2001)). The survey responses were scored for frequency and timeliness on a scale of 0–10, with 10 being the most transparent, conforming with the IMF's Special Data Dissemination Standards (SDDSs).<sup>4</sup> Table AI in Appendix A provides details of the scoring method. We subtract the values of these two indices from 10, construct a simple average of the variables for each year, and call this average *Macrodata Opacity*. For the years 1998–1999, we use the values from 1997. One should keep in mind that this measure captures frequency and timeliness of information release but not necessarily accuracy of the data.

To cover the macroeconomic policy opacity dimension, we construct two separate indices. The first one is based on two measures developed by Oxford Analytica for the California Public Employees' Retirement System (CalPers). Oxford Analytica produced detailed transparency reports for 27 countries and assigned scores to fiscal and monetary policies. For about half of the countries, Oxford Analytica relied heavily on the recent "Reports on Standards and Codes" (ROSCs) on fiscal and monetary policies produced by the IMF.<sup>5</sup> Because

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<sup>4</sup> The SDDS was introduced and subsequently strengthened in response to the perception that inadequate data provision, particularly that relating to international reserves, had precipitated or exacerbated the Mexican and Thai crises in 1994 and 1997, respectively.

<sup>5</sup> ROSCs summarize the extent to which countries observe certain internationally recognized standards and codes in 12 areas: accounting, auditing, anti-money laundering and countering the financing of terrorism, banking supervision, corporate governance, data dissemination, fiscal transparency insolvency and creditor rights, insurance supervision, monetary and financial policy transparency, payments systems, and securities regulation. Reports summarizing country

the ratings are largely based on the degree to which a government's conduct of macro policies conforms to the recommended standards and codes rather than on macroeconomic outcomes, they have, in principle, been filtered by the impact of exogenous shocks to the economy. We add these scores, subtract the sum from 10, and label this variable *Macropolicy Opacity I* (for more details, see Appendix A).

The second index of macroeconomic policy opacity is based on the dispersion of beliefs about macroeconomic outcomes. The underlying assumption is that the less transparent the conduct of macroeconomic policies, the larger should be the dispersion of macroeconomic forecasts across forecasters. We exploit this idea by using the standard deviation of expected inflation rates for current-year inflation across survey participants in the *Consensus Forecasts* January surveys.<sup>6</sup> For a substantial number of emerging markets, the company Consensus Forecasts conducts surveys across banks and other market analysts, reporting individual forecasts of participants. The typical number of surveyed participants in each country is about 20, and comprehensive data are available for 20 countries. We call this index *Macropolicy Opacity II* which, in contrast to *Macropolicy Opacity I*, varies from year to year. One possible drawback of this index is that a higher dispersion of beliefs may not only be the result of policy opacity but may conceivably be related to higher uncertainty about exogenous shocks. We believe, however, that since inflation is a macroeconomic target that is largely under the control of fiscal and monetary policies (as opposed to, say, export or gross domestic product (GDP) growth), it is not very susceptible to this problem. In any case, it is a useful complementary measure to *Macropolicy Opacity I*.

We also conduct a quasi-event study examining the effects of discrete transparency reforms that occurred during our sample period. In response to the financial market crises of the 1990s, the IMF introduced a series of reforms aimed at increasing country transparency. Here, we follow Glennerster and Shin (2003) in interpreting the voluntary adoption of a number of key reforms as fundamental changes in a country's transparency. These key reforms are as follows: the first voluntary publication of IMF Article IV reports (regular comprehensive economic "health check-ups" by the IMF staff whose publication requires the country's consent), the publication of the aforementioned ROSCs, and the adoption of the so-called SDDS, a framework setting common definitions for macroeconomic data as well as frequency and timeliness of data release. All in all, we observe 18 such events in our sample period (see Table AIII in Appendix B).

## B.2. Corporate Opacity

The annual Global Competitiveness Report produced by the World Economic Forum includes results from surveys about the level of financial disclosure and

observance of these standards are prepared and published at the request of the member country. Oxford Analytica's ratings were based on ROSCs in the areas of monetary and financial policy as well as fiscal transparency. Further details are given in the Appendix A.

<sup>6</sup> See Geraats (2002) for a discussion of monetary policy transparency.

the availability of information about companies in the years 1999–2000. The survey measures the perceptions of over 3,000 executives about the country in which they operate and covers 53 countries. The respondents are asked to assess the validity of the statement “The level of financial disclosure required is extensive and detailed” with a score from 1 (strongly disagree) to 7 (strongly agree). Based on these results, we construct a summary variable called *Corporate Opacity* (further details are given in Appendix A).

### *B.3. Composite Opacity*

Finally, we also use a composite index encompassing all dimensions of opacity. The accounting and consulting company PricewaterhouseCoopers (PwC) conducted a survey of banks, firms, equity analysts, and in-country staff in 35 countries in 2000 to generate measures of opacity in five areas (PricewaterhouseCoopers, 2001): bureaucratic practices (corruption), legal system, government macroeconomic policies, accounting standards and practices, and regulatory regime. PwC aimed at interviewing at least 20 chief financial officers (CFOs), five bankers, five equity analysts, and five PwC employees in each country. The scoring for the five areas is aggregated to form a single index (see Appendix A for more details). Following PwC, we call this index *O-Factor*. Table AII in Appendix A presents country averages of all the opacity measures used.

### *B.4. Correlation among the Opacity Measures and Relation to Other Indices*

The different measures appear to capture different aspects of country opacity: The correlation among them is generally positive but far from perfect (Table II).<sup>7</sup> The overall measure *O-Factor* is fairly strongly correlated with *Corporate Opacity* and *Macropolicy Opacity II* (correlation coefficients 0.69 and 0.60, respectively). The correlation between *Macropolicy Opacity I* and *Macrodata Opacity* is also quite high (0.63). However, the correlations between *Macrodata Opacity* and *O-Factor* and between *Corporate Opacity* and *Macrodata Opacity* are low. The table also shows the correlation of the opacity indices with GDP per capita. These correlations are generally negative, consistent with the view that less developed countries tend to be less transparent. However, the correlations are far away from  $-1.0$ , suggesting that the opacity indices capture something different than just economic development.

How do our indices of corporate opacity relate to those constructed using microdata on companies? Recently Bhattacharya et al. (2003) construct indices of earnings opacity for companies in 34 countries.<sup>8</sup> Specifically, they build an “earnings aggressiveness measure” to assess the extent to which companies delay the recognition of losses and speed the recognition of gains, a “loss avoidance measure” to measure the extent to which companies avoid reporting negative

<sup>7</sup> A list of countries in our sample and their associated opacity measures are given in Table A1.

<sup>8</sup> See also Leuz et al. (2003).

**Table II**  
**Correlation among Opacity Measures**

*Macropolicy Opacity I and II* are indices that measure the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; *Corporate Opacity* is an index measuring the availability of information about companies; and, *O-Factor* is a broad country opacity index developed by the accounting and consultancy company PricewaterhouseCoopers. Details of the construction of the variables are described in Appendix A.

		<i>O-Factor</i>	<i>Macropolicy Opacity I</i>	<i>Macropolicy Opacity II</i>	<i>Macrodata Opacity</i>	<i>Corporate Opacity</i>
Overall	<i>O-Factor</i>	1				
	<i>Macropolicy Opacity I</i>	0.44	1			
Government opacity	<i>Macropolicy Opacity II</i>	0.60	0.36	1		
	<i>Macrodata Opacity</i>	0.06	0.63	-0.17	1	
Corporate opacity	<i>Corporate Opacity</i>	0.69	0.54	0.43	0.02	1
Correlation with income levels	GDP per capita	-0.54	-0.40	-0.20	-0.03	-0.56

GDP = gross domestic product.

earnings and an “earnings smoothing measure.” Since the authors do not focus on emerging markets, the overlap with our country sample is small. Nevertheless, for the 14 countries for which we have common data, we compare their indices with our own as follows. We first compute the country rank for each of their average earnings opacity measures and calculate the average country rank across the three indices. Next, we compute the Spearman rank correlation with the country ranks of the two of our indices that are related to the transparency of companies, *O-Factor* and *Corporate Opacity*. While the small number of observations limits formal inference, the indices seem to be measuring related issues: The correlation coefficients are 0.64 for the case of *O-Factor* and 0.46 for the case of *Corporate Opacity*, and the null hypothesis of independence can be rejected at the 2% and 8% confidence levels, respectively. Therefore, our measure of corporate opacity is likely related to their earnings opacity measure.

### B.5. Additional Control Variables

When trying to ascertain the effects of transparency on international investment, it is useful to distinguish between transparency and other forms of market segmentation or costs that impede the international flow of capital. Such factors include low liquidity, capital controls, limited float of shares, closely held ownership, transaction costs and taxation, or insufficient protection of minority shareholders, among others. In the estimations below, we make a substantial effort to address this issue. First, we control for a long list of country characteristics that can be suspected of being correlated with transparency. Second, we employ alternative estimations with fixed effects, which allow us to control for any unobserved, time-invariant regional and country factors.

## II. Transparency and Country Asset Allocation

### A. Main Results

Do global and emerging market funds allocate less money to less transparent countries? To examine this question, we need a benchmark describing funds' country asset allocations if all countries were equal along the transparency dimension. We take as our guidance the International Capital Asset Pricing Model, which suggests that international investors should hold assets of each country in proportion to the country's share in the world market portfolio.<sup>9</sup> As an empirical proxy for the world market portfolio, we choose the popular Morgan Stanley Capital International (MSCI) Emerging Markets Free (EMF) Index produced by Morgan Stanley. The index is based essentially on the market capitalization of a country's stocks available to foreign investors, taking into account restrictions on foreign ownership. It is common both for asset managers to use this index as their performance benchmark and report their positions relative to it, and for investment banks to issue recommendations relative to the index (e.g., "over-weight South Africa" means "advisable to invest more than South Africa's weight in the MSCI EMF index"). Indeed, Disyatat and Gelos (2001) report evidence that the country allocation of dedicated emerging market funds can be explained to a large extent by the MSCI index. Therefore, this is a natural benchmark to use.

Consequently, our empirical strategy is to examine whether a country's level of opacity helps to explain a mutual fund's investment position after taking into account the country's share in the MSCI EMF index. The first, basic regressions are of the form

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot Opacity Index_{i,t} + \varepsilon_{it}, \quad (1)$$

where  $w_{i,j,t}$  denotes the weight of country  $i$  in fund  $j$ 's portfolio at the end of period  $t$  and  $\alpha_j$  is a fund fixed effect. The right-hand side variables do not vary with the fund dimension  $j$ . For this reason, we allow for clustering of the errors around the  $j$  dimension to avoid artificially inflated  $t$ -statistics.<sup>10</sup> The coefficient on *Opacity Index* would be negative if global and emerging market funds systematically invested less in less transparent countries.

Here, we focus on dedicated global emerging market funds, which are constrained to invest in those countries that typically use the MSCI index performance as their benchmark. For this group of funds, our main control variable,

<sup>9</sup> Estimating an explicit portfolio choice model is not trivial since it requires knowledge about expected moments. Disyatat and Gelos (2001) discuss and show that using historical returns to model expected returns is not appropriate in this context.

<sup>10</sup> See Rogers (1993). A less efficient alternative is to simply form averages by fund, allowing for serial correlation by country; we obtain very similar results when proceeding in this way. A related problem concerns the estimation of the effect of aggregate variables on microdata, since doing so requires awareness that errors are likely to be correlated within the groups formed by the aggregate variables (see Moulton (1990)). Aggregating by funds obviously solves this problem. Alternatively, we allow for clustering of the errors for each country-month group, and the effect of the transparency variables remains statistically significant.

the MSCI weight, is therefore appropriate. Within this class of funds, approximately 15% are closed-end funds.<sup>11</sup>

There are two things worth noting at the outset. First, the total market capitalization in any country must be held in the aggregate by some investors. In other words, not all investors can be “underweight” in less transparent countries. Therefore, our empirical investigation concerns whether and how the level of foreign investment relative to domestic investment is affected by opacity. Second, specification (1) ignores any effect of transparency on a country’s share in the MSCI EMF index itself. It seems plausible that opacity would inhibit the development of a country’s financial market. To the extent that this is true, our specification may underestimate the true negative effect of opacity on the level of international investment.<sup>12</sup> One possible way of addressing this is to first run a regression of the MSCI index on the respective opacity index and include only the residual from that regression as a control variable in the second-stage estimations. By using the orthogonalized component of the MSCI index in the regression, the coefficients and standard errors on the MSCI index and other control variables will not be affected, but we will estimate the total effect of an increase in opacity, including through its effect on the index itself.

The regression results are presented in Table III. The estimates based on specification (1) are reported in Panel A. Without exception, the lack of transparency in a country is associated with less investment by international funds. The overall opacity index (the *O-Factor*) and all four other indices of opacity are statistically significantly and negatively correlated with country weights.<sup>13</sup> In Panel B of Table III, we report the results using the orthogonalized component of the MSCI index. As suspected, this yields substantially larger effects of opacity on holdings.

While we believe that the MSCI EMF index provides a good benchmark for our analysis, other factors might be relevant in determining the allocation of funds’ assets across countries. Therefore, we make an attempt to control for many other factors that might be suspected of being correlated with opacity. (i) Funds might prefer to be overweight in more liquid markets, and thus, transparency measures might be proxying for market liquidity. Therefore, we

<sup>11</sup> We do not exclude closed-end funds in the estimations shown here; none of the conclusions drawn below is affected when we exclude them.

<sup>12</sup> A similar issue is related to the role of American Depositary Receipts (ADRs) or Global Depositary Receipts (GDRs) traded in advanced markets. Firms in less transparent countries may be more inclined to choose to issue ADRs or GDRs. If this is the case, it will make it more difficult for us to find any effects of transparency on the investment behavior of funds. (Note that purchases of ADRs show up in our data in the same way as regular equity purchases, that is, as an increase in a fund’s assets in that country.) In separate regressions (not shown), we include the volume of ADRs as a fraction of total market capitalization in our regressions. This fraction has a positive, statistically significant effect on holdings but does not materially change the coefficients on our opacity indices. We are grateful to Graciela Kaminsky and Leora Klapper for discussions on this issue and to Sergio Schmukler for providing us with data on ADRs.

<sup>13</sup> Ahearne et al. (2001) find that an interaction variable of an index measuring rule of law and an index measuring accounting standards contributes to explaining U.S. holdings of foreign equities.

**Table III**  
**The Effect of Opacity on Investment by Global Funds**

The dependent variable in all ordinary least squares (OLS) regressions is the country portfolio weight of fund  $j$  in country  $i$  at time  $t$  ( $w_{i,j,t}$ ):

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{\text{benchmark}} + \gamma \cdot \text{Opacity Index}_{i,t} + \varepsilon_{i,t}.$$

$t$ -Statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Includes only global emerging market funds. Coefficients that are significant at the 5% level are marked bold. *Macropolicy Opacity* is an index that measures the opacity of a country's monetary and fiscal policies; *Macrodatability Opacity* is an index of the timeliness and frequency of macroeconomic data releases; *Corporate Opacity* is an index measuring the availability of information about companies; and *O-Factor* is a broad country opacity index developed by the accounting and consultancy company PricewaterhouseCoopers. In Panel B, we present the results from substituting the orthogonalized component of the MSCI index for the actual index  $w_{i,j,t}$  (i.e., the residual from an OLS regression of MSCI benchmark weights on the opacity index). Details of the construction of the variables are described in Appendix A.

	<i>O-Factor</i> (Composite)	<i>Macropolicy</i> <i>Opacity I</i>	<i>Macropolicy</i> <i>Opacity II</i>	<i>Macrodatability</i> <i>Opacity</i>	<i>Corporate</i> <i>Opacity</i>
Panel A: Using the Actual MSCI Benchmark Indices as the Control Variable					
MSCI index	<b>0.766</b> ( <b>32.74</b> )	<b>0.727</b> ( <b>34.61</b> )	<b>0.720</b> ( <b>28.46</b> )	<b>0.756</b> ( <b>39.69</b> )	<b>0.710</b> ( <b>33.33</b> )
Opacity index	<b>-0.030</b> ( <b>-4.13</b> )	<b>-0.134</b> ( <b>-6.45</b> )	<b>-0.022</b> ( <b>-5.82</b> )	<b>-0.117</b> ( <b>-4.31</b> )	<b>-0.225</b> ( <b>-3.61</b> )
Number of obs.	92,452	82,888	52,832	114,768	98,828
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Clustering by fund	Yes	Yes	Yes	Yes	Yes
Adj. $R^2$	0.60	0.61	0.54	0.60	0.56
Panel B: Using the Orthogonalized Component of MSCI Benchmark Index Instead of the Actual MSCI Index					
Orthogonalized component of MSCI index	<b>0.766</b> ( <b>32.74</b> )	<b>0.727</b> ( <b>34.61</b> )	<b>0.720</b> ( <b>28.46</b> )	<b>0.756</b> ( <b>39.69</b> )	<b>0.710</b> ( <b>33.33</b> )
Opacity index	<b>-0.094</b> ( <b>-13.83</b> )	<b>-0.78</b> ( <b>-28.66</b> )	<b>-0.104</b> ( <b>-24.71</b> )	<b>-1.007</b> ( <b>-29.76</b> )	<b>-1.294</b> ( <b>-20.22</b> )
Number of obs.	92,452	82,888	52,832	114,768	98,828
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Clustering by fund	Yes	Yes	Yes	Yes	Yes
Adj. $R^2$	0.60	0.61	0.54	0.60	0.56

include average turnover (average monthly value traded divided by mean market capitalization) as an additional variable. (ii) Fund managers could prefer countries with strong protection of minority shareholders, and transparency might be picking up this effect. For this reason, we include a summary variable on minority shareholder rights constructed by La Porta et al. (1998) (LLSV) and extended by Pistor, Raiser, and Gelfer (2000). (iii) Countries classified

by us as less transparent may be ones with more closely held stock ownership. Dahlquist et al. (2003) point out that only a fraction of the market capitalization in most countries is available to international investors who are not controlling shareholders. They compute the percentage of firms that are closely held for many countries, and show that home bias by U.S. investors can largely be explained by this effect. We include their measure of closely held shares in our regressions. (iv) One may also suspect that our opacity measures are likely to capture other factors associated with economic development, not necessarily market opacity. For this reason, we also include GDP per capita as an additional explanatory variable. (v) Opacity indices may be capturing a more broad set of country risks than those specifically associated with a lack of transparency.

We therefore include monthly summary redundant variables for economic, financial, and political risk produced by the International Country Risk Guide (ICRG).<sup>14</sup> Note that in some sense, this represents an overcorrection, since these risk measures capture some country characteristics related to transparency—in fact, these variables have occasionally been used to measure transparency.<sup>15</sup> We also include a 3-year moving average of mean returns to capture the possibility that fund managers are return chasing.

When we include these control variables, all opacity variables except for *Corporate Opacity* continue to have negative and statistically significant coefficients (Table IV). For those indices, the significance of the coefficients tends to increase, as possible biases from omitted variables are mitigated. The coefficients on the other control variables generally, though not always, have the expected signs and are often statistically significant.<sup>16</sup>

Quantitatively, the estimated effect of opacity on international investment is not trivial. For example, the estimate using *O-Factor* as the opacity measure suggests that a country like Venezuela, currently with an average portfolio weight of 0.4% in fund portfolios, could achieve a weight boost of about 1.4 percentage points if it increased its transparency to Singapore's level.<sup>17</sup>

<sup>14</sup> For details, see Appendix C and Table AIV. Note that the ICRG variables have been used in the literature to derive expected returns. See, for example, Erb, Harvey, and Viskanta (1996).

<sup>15</sup> See Furman and Stiglitz (1998).

<sup>16</sup> One control variable that seems to have a puzzling coefficient is turnover rate. In three out of five cases in Table IV, the coefficient on this variable is negative and statistically significant. One explanation is that more liquidity has a beneficial effect, but that it occurs mostly through the effect on market size and the impact on market indices such as the MSCI. (Using the component of the MSCI index that is orthogonal to liquidity in the regressions yields positive coefficients on liquidity.) Once this effect is controlled for, the additional effect of liquidity could possibly reflect the presence of larger trading associated with insiders in the local market, which may deter investment by international mutual funds. (See Bhattacharya and Daouk (2002) and Du and Wei (2004) for the effect of insider trading on stock price and volatility around the world.)

<sup>17</sup> In addition, the effect of opacity may depend on the size of the market. We also run regressions using the percentage deviations from benchmark weights as the independent variable, with similar results. Alternatively, we include an interaction term of the benchmark weight (a measure of market size) and our opacity indices. The coefficient is positive, indicating that the effect of opacity is stronger for smaller countries.

Table IV

**Opacity and Investment by Global Funds: Adding Control Variables**

The dependent variable in all ordinary least squares (OLS) regressions is the country portfolio weight of fund  $j$  in country  $i$  at time  $t$  ( $w_{i,j,t}$ ):

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{\text{benchmark}} + \gamma \cdot \text{Opacity Index}_{i,t} + \delta \cdot \text{Control Variables} + \varepsilon_{i,t}.$$

$t$ -Statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Coefficients that are significant at the 5% level are marked bold. Only global emerging market funds are included in the estimations. *Macropolicy Opacity* is an index that measures the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; *Corporate Opacity* is an index measuring the availability of information about companies; and, *O-Factor* is a broad country opacity index developed by the accounting and consultancy company PricewaterhouseCoopers. Details of the construction of the variables are described in Appendices I and II.

	<i>O-Factor</i>	<i>Macropolicy Opacity I</i>	<i>Macropolicy Opacity II</i>	<i>Macrodata Opacity</i>	<i>Corporate Opacity</i>
MSCI index	<b>0.697</b> (35.46)	<b>0.694</b> (32.32)	<b>0.700</b> (27.54)	<b>0.667</b> (31.94)	<b>0.671</b> (-32.93)
Opacity index	<b>-0.103</b> (-11.72)	<b>-0.390</b> (-10.06)	<b>-0.281</b> (-11.52)	<b>-0.250</b> (-3.69)	-0.032 (-0.20)
GDP per capita (average)	0.0146 (1.22)	<b>-0.011</b> (-6.66)	<b>0.12</b> (9.46)	<b>0.092</b> (8.37)	<b>0.073</b> (4.46)
Turnover	<b>-3.381</b> (-5.44)	0.618 (0.99)	<b>-7.246</b> (-6.80)	0.787 (1.54)	<b>-4.235</b> (-4.20)
Share of firms closely held	<b>-0.023</b> (-8.75)	<b>-0.020</b> (-4.94)	<b>-0.030</b> (-7.54)	<b>-0.058</b> (-19.76)	<b>-0.034</b> (-12.72)
Minority shareholders' rights	<b>-0.077</b> (-2.43)	<b>-0.373</b> (-10.09)	-0.003 (-0.06)	<b>-0.084</b> (-2.81)	<b>-0.022</b> (-0.45)
ICRG economic risk	<b>-0.091</b> (-9.42)	<b>-0.043</b> (-4.38)	<b>-0.158</b> (-11.51)	<b>-0.082</b> (-9.01)	<b>-0.111</b> (-9.93)
ICRG financial risk	0.001 (0.19)	<b>-0.042</b> (-4.45)	-0.015 (-1.56)	<b>-0.028</b> (-3.10)	0.003 (0.35)
ICRG political risk	<b>-0.020</b> (-5.38)	<b>-0.022</b> (-4.35)	<b>-0.045</b> (-8.73)	<b>-0.023</b> (-5.58)	<b>-0.015</b> (-3.60)
Historical returns	<b>11.701</b> (4.92)	<b>13.593</b> (5.28)	<b>31.410</b> (9.89)	<b>10.868</b> (4.06)	<b>10.202</b> (3.86)
Number of obs.	63,966	56,282	40,908	64,184	65,492
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Adj. $R^2$	0.57	0.60	0.53	0.55	0.51

GDP = gross domestic product; ICRG = International Country Risk Guide.

Lastly, exchange rate regimes may potentially be correlated with opacity and fund managers may have a preference for certain exchange rate arrangements. To capture this explicitly, we include monthly dummies for five different types of exchange rate regimes based on recent work by Reinhart and Rogoff (2002). Table V adds these variables, describing the features of a country's exchange rate regime to the list of control variables. Each of the opacity variables

**Table V**  
**Opacity and Investment by Global Funds: Adding Exchange Rate Regimes**

The dependent variable in all ordinary least squares (OLS) regressions is the country portfolio weight of fund  $j$  in country  $i$  at time  $t$  ( $w_{i,j,t}$ ).

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{\text{benchmark}} + \gamma \cdot \text{Opacity Index}_{i,t} + \delta \cdot \text{Control Variables} + \varepsilon_{i,t}.$$

$t$ -Statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Coefficients that are significant at the 5% level are marked bold. Only global emerging market funds are included in the estimations. *Macropolicy Opacity I* and *II* are indices measuring the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; *Corporate Opacity* is an index measuring the availability of information about companies; and *O-Factor* is a broad country opacity index developed by the accounting and consultancy company PricewaterhouseCoopers. Details of the construction of the variables are described in Appendices I and II.

	<i>O-Factor</i>	<i>Macropolicy Opacity I</i>	<i>Macropolicy Opacity II</i>	<i>Macrodata Opacity</i>	<i>Corporate Opacity</i>
MSCI index	<b>0.739</b> (36.76)	<b>0.728</b> (32.94)	<b>0.702</b> (27.50)	<b>0.686</b> (33.26)	<b>0.706</b> (34.84)
Opacity index	<b>-0.041</b> (-4.89)	<b>-0.337</b> (-8.69)	<b>-0.0237</b> (-10.27)	<b>-0.180</b> (-2.64)	<b>0.204</b> (1.67)
GDP per capita (average)	<b>0.052</b> (4.92)	<b>-0.097</b> (-5.90)	<b>0.116</b> (8.10)	<b>0.080</b> (7.52)	<b>0.084</b> (5.84)
Turnover	<b>-3.489</b> (-6.55)	<b>0.247</b> (0.44)	<b>-5.178</b> (-5.21)	0.510 (1.24)	<b>-4.689</b> (-4.84)
Minority shareholders' rights	-0.020 (-0.68)	<b>-0.346</b> (-9.24)	<b>-0.104</b> (-2.72)	0.025 (1.02)	0.095 (1.86)
Share of firms closely held	<b>-0.022</b> (-8.02)	<b>-0.014</b> (-3.36)	<b>-0.021</b> (-5.07)	<b>-0.052</b> (-18.65)	<b>-0.028</b> (-9.77)
Exchange rate dummy: peg	<b>0.752</b> (2.31)	<b>0.928</b> (3.19)	<b>1.514</b> (4.60)	0.615 (1.88)	<b>0.874</b> (2.73)
Exchange rate: limited flexibility	0.031 (0.10)	0.305 (1.01)	0.480 (1.52)	-0.615 (1.88)	0.179 (0.57)
Exchange rate: managed floating	<b>0.702</b> (2.20)	<b>0.933</b> (2.96)	<b>1.317</b> (3.95)	<b>1.157</b> (3.29)	<b>1.057</b> (3.13)
Exchange rate: freely floating	-0.712 (-1.80)	-0.558 (-1.58)	-0.027 (-0.08)	-0.595 (-1.53)	-0.585 (-1.51)
Exchange rate: freely falling	0.407 (1.23)	-0.093 (-0.28)	0.509 (1.49)	0.189 (0.55)	0.508 (1.44)
ICRG economic risk	<b>-0.131</b> (-12.06)	<b>-0.088</b> (-9.67)	<b>-0.168</b> (-12.91)	<b>-0.111</b> (-12.37)	<b>-0.148</b> (-12.95)
ICRG financial risk	<b>0.025</b> (3.67)	<b>-0.035</b> (-4.18)	-0.007 (-0.83)	-0.007 (-0.95)	<b>0.025</b> (3.59)
ICRG political risk	<b>-0.029</b> (-8.05)	<b>-0.029</b> (-5.75)	<b>-0.052</b> (-9.21)	<b>-0.039</b> (-9.32)	<b>-0.027</b> (-6.41)
Historical returns	<b>9.779</b> (4.33)	<b>15.884</b> (6.17)	<b>31.806</b> (10.49)	<b>16.682</b> (6.27)	<b>12.022</b> (4.79)
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Number of obs.	67,154	59,470	44,096	67,372	68,680
Adj. $R^2$	0.56	0.60	0.54	0.56	0.52

GDP = gross domestic product; ICRG = International Country Risk Guide.

continues to be negative and statistically significant. Concerning exchange rate regimes, funds appear to have a “fear of floating,” in the sense that they invest less in countries with a freely floating regime, other things being equal.

We now turn to the question of the relative importance of the different transparency measures.

### B. A Horse Race among Different Transparency Dimensions

What is the relative importance of these dimensions of transparency? One metric to answer this question is the relative size of the adjusted  $R^2$  in univariate regressions of international investment on each of these opacity indices, as reported in Table III. Based on that table, *Macropolicy Opacity I* and *Macrodata Opacity* (with adjusted  $R^2$  equal to 61% and 60%, respectively) appear to be more important in relative terms than *Macropolicy Opacity II* and *Corporate Opacity* (with adjusted  $R^2$  equal to 54% and 56%, respectively). However, this metric has its limitations. First, due to somewhat different sample coverages, the  $R^2$  in Table III are not exactly comparable to each other, and when using the same reduced sample for each regressor, the  $R^2$  are virtually identical at 71%. Second, these different dimensions of opacity are correlated, as demonstrated in Table II. Hence, it is possible that once some dimensions of opacity are controlled for, other dimensions may no longer matter for international investment.

As an alternative way to measure their relative importance, we also run a simple “horse race” between our indices, including them jointly in regressions (Table VI). We do not include *O-Factor* since it is a summary variable that encompasses both corporate and macroeconomic transparency.

The coefficients on all opacity measures are negative, consistent with the view that different opacity measures may each contribute to a reduction in investment. However, only the two *Macropolicy Opacity* indices are significant in regressions both with and without control variables. The effects of both *Macropolicy Opacity* indices are more pronounced. However, when including control variables, as before, this likely reflects the mitigation of omitted variable biases. Regarding economic significance, *Macropolicy Opacity I* has the strongest quantitative effect: According to the estimation including control variables, a decrease in *Macropolicy Opacity II* from the top 75<sup>th</sup> percentile to the bottom 25<sup>th</sup> percentile increases portfolio weights by 1.8 percentage points, while a corresponding reduction in *Macropolicy Opacity I* has a more modest effect, resulting in a 10<sup>th</sup> of a percentage point increase in portfolio weights.

It is useful to note a caveat here. As shown in Table II, *Macropolicy Opacity I* has a relatively high correlation with both *Macrodata Opacity* (0.63) and *Corporate Opacity* (0.54). Hence, the lack of significance of *Macrodata Opacity* and *Corporate Opacity* in the presence of *Macropolicy Opacity I* could simply be a result of multicollinearity among these variables, as

**Table VI**  
**Investment Levels: Horse Race between Transparency Measures**

Ordinary least squares (OLS) regressions with fund fixed effects. Dependent variable: Country portfolio weight of fund  $i$  in country  $j$  at time  $t$  ( $w_{i,j,t}$ ).  $t$ -Statistics are given in parentheses (based on robust standard errors, allowing for error clustering by country-month). Additional control variables are not reported. Only global emerging market funds are included in the estimations. Coefficients that are significant at the 5% level are marked bold. *Macropolicy Opacity* is an index that measures the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; and *Corporate Opacity* is an index measuring the availability of information about companies. Details of the construction of the variables are described in Appendix A.

	Regression Incl. Only Benchmark Weights as Control Variable (as in Table III)	Regression Incl. Control Variables (as in Table IV)
<i>Macropolicy Opacity I</i>	<b>-0.212</b> (-3.97)	<b>-0.676</b> (-10.85)
<i>Macropolicy Opacity II</i>	<b>-0.010</b> (-2.11)	<b>-0.125</b> (-5.42)
<i>Macrodata Opacity</i>	-0.177 (-1.57)	-0.119 (-0.80)
<i>Corporate Opacity</i>	0.122 (0.82)	-0.137 (-0.81)
Number of obs.	41,444	34,532
Adj. $R^2$	0.63	0.75

opposed to a proof that *Macrodata Opacity* and *Corporate Opacity* do not matter.<sup>18</sup>

### C. Endogeneity and Omitted Variable Bias

Endogeneity is a potential problem for our estimations. Some of our opacity measures are constructed toward the end of or after the sample period. Increases in mutual fund investments themselves may potentially trigger reforms toward more transparency.<sup>19</sup> We address these endogeneity problems in several ways.

First, we use an earlier measure of corporate opacity, namely, the accounting standard variable proposed by La Porta et al. (1998).<sup>20</sup> The measure

<sup>18</sup> Examining bivariate correlations is not sufficient to detect multicollinearity. An alternative way of examining this issue is to regress each of the independent variables on the others. It turns out that 50% of the variation in *Corporate Opacity* and 43% of the variation of *Macrodata Opacity* can be explained by the other regressors in the first column of Table VI. A rule of thumb is that one should worry about multicollinearity if these  $R^2$  for the independent variables exceed the  $R^2$  of the original regression (Greene (1993), p. 269). While this is not the case here, we cannot dismiss the possibility of a multicollinearity problem.

<sup>19</sup> See Kaminsky and Schmukler (2003) for a discussion of the sequencing of institutional reforms and financial liberalization.

<sup>20</sup> To be consistent with our other measures, we subtract the original variable from 100, so that higher levels denote higher accounting opacity.

was published in 1991, and for Indonesia and Pakistan we use values published in 1993 following Doidge, Karolyi, and Stulz (2002); the index is therefore predetermined. We find that the degree of accounting opacity has a significant negative effect on holdings, with coefficients ranging from  $-0.025$  ( $t$ -statistic:  $-4.06$ ) in the simple regression to  $-0.034$  ( $t$ -statistic:  $-3.68$ ) in a regression including control variables (as in Table V).

Second, for those opacity indices for which we have time-series observations, we can estimate regressions using lagged opacity indices.<sup>21</sup> For all three indices for which we can carry out this estimation, we observe that the coefficients remain broadly unchanged and statistically significant (Table VII).<sup>22</sup>

Finally, to assess the extent of any endogeneity problems, we follow a similar approach as in Bhattacharya et al. (2003) in estimating a vector autoregression model with yearly fund-averages of country weightings  $w_{i,j,t}$ , the benchmark indices, *Macropolicy Opacity II* (dispersion of forecasts), and *Macrodata Opacity* as endogenous variables, and the previously used control variables as exogenous variables:

$$w_{i,j,t} = \alpha + w_{i,j,t-1} + \beta \cdot w_{i,t-1}^{benchmark} + \gamma \cdot Opacity Index_{i,t-1} + \phi \cdot Control Variables_{i,t} + \varepsilon_{i,t}, \quad (2)$$

$$Opacity Index_{i,t} = \alpha + w_{i,j,t-1} + \beta \cdot w_{i,t-1}^{benchmark} + \gamma \cdot Opacity Index_{i,t-1} + \phi \cdot Control Variables_{i,t} + \varepsilon_{i,t}. \quad (3)$$

It turns out that both opacity indices Granger-cause funds' country weights  $w_{i,j,t}$  but the reverse is only true for *Macrodata Opacity* (and only at the 10% confidence level, Table VIII). This suggests that endogeneity is not an important problem for *Macropolicy Opacity II*.<sup>23</sup>

While we include a long list of control variables that are potentially correlated with opacity, we may not be exhausting all relevant variables that could result in omitted variable bias. Factors not controlled for in the regressions may drive both opacity and mutual funds investments, yielding spurious estimates. In principle, for those opacity indices with sufficient time variation, we could include fixed country effects that would control for any constant omitted country factors. This is of course a very challenging task since there needs to be substantial movement in a country's opacity for us to estimate its effect with any precision; one would expect that opacity, as a reflection of a country's institutions, should show a relatively high degree of persistence. Instead, we include regional dummies to capture the time-invariant unobserved characteristics common to regions. When including fixed region effects, *Macrodata Opacity* loses its significance, while the coefficients on *Macropolicy Opacity II* and *Corporate Opacity* continue to be statistically significant at the 1% level

<sup>21</sup> Bhattacharya et al. (2003) follow this approach in a related context.

<sup>22</sup> Using lagged indices may also address the possibility that fund managers act based on expected opacity. For the case of *Macroeconomic Opacity II* (dispersion of forecasts), this does not seem to represent an issue, since it is a forward-looking variable based on expectations. Nevertheless, we use lags in Table VII.

<sup>23</sup> Note that *Macropolicy Opacity I* is not used in this exercise because it is not time varying.

**Table VII**  
**Investment Levels: Regressions with Lagged Opacity Indices**

The dependent variable in all ordinary least squares (OLS) regressions is the country portfolio weight of fund  $j$  in country  $i$  at time  $t$  ( $w_{i,j,t}$ ):

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot Opacity Index_{i,t-1} + \varepsilon_{i,t}.$$

$t$ -Statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund).  $w_{i,t}^{benchmark}$  is the MSCI benchmark weight of country  $i$  at time  $t$ . Coefficients that are significant at the 5% level are marked bold. Only global emerging market funds are included in the estimations. *Macropolicy Opacity II* is an index measuring the opacity of a country’s monetary and fiscal policies and *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases. Details of the construction of the variables are described in Appendices I and II. *Macropolicy Opacity I* is not included in this table because it is not time varying.

	<i>Macrodata Opacity</i>	<i>Macropolicy Opacity II</i>	<i>Corporate Opacity</i>
MSCI index	<b>0.725</b> ( <b>38.44</b> )	<b>0.722</b> ( <b>27.07</b> )	<b>0.718</b> ( <b>37.96</b> )
Lagged opacity index	<b>-0.147</b> ( <b>-2.11</b> )	<b>-0.074</b> ( <b>-4.20</b> )	<b>-1.002</b> ( <b>-5.47</b> )
Turnover	0.876 (1.71)	<b>-7.944</b> ( <b>-7.30</b> )	<b>-4.874</b> ( <b>-4.20</b> )
Share of firms closely held	<b>0.054</b> ( <b>-20.11</b> )	<b>-0.033</b> ( <b>-8.19</b> )	<b>-0.055</b> ( <b>-13.47</b> )
Minority shareholders’ rights	<b>-0.089</b> ( <b>-2.99</b> )	0.047 (1.18)	-0.130 (-1.85)
GDP per capita	<b>0.075</b> ( <b>7.19</b> )	<b>0.112</b> ( <b>9.15</b> )	<b>0.058</b> ( <b>3.36</b> )
ICRG economic risk	<b>-0.070</b> ( <b>-8.32</b> )	<b>-0.095</b> ( <b>-7.53</b> )	<b>-0.178</b> ( <b>-11.63</b> )
ICRG financial risk	-0.011 (-1.37)	<b>-0.028</b> ( <b>-2.85</b> )	<b>-0.024</b> ( <b>-3.01</b> )
ICRG political risk	<b>-0.020</b> ( <b>-4.89</b> )	<b>-0.048</b> ( <b>-8.11</b> )	<b>-0.011</b> ( <b>-2.09</b> )
Historical returns	<b>7.915</b> ( <b>2.63</b> )	<b>29.801</b> ( <b>9.01</b> )	<b>-8.053</b> ( <b>-2.04</b> )
Number of obs.	55,596	39,004	21,880
Adj. $R^2$	0.60	0.53	0.60

ICRG = International Country Risk Guide.

(Table IX), although they diminish somewhat in size compared to the other regressions.<sup>24</sup> Lastly, we also present results for estimations with fixed effects and lagged opacity variables (Table IX). Both *Macropolicy Opacity II* and *Corporate Opacity* remain statistically significant.

We also pursue a different, additional approach, and conduct a quasi-event study to complement our analysis so far and to control for unobserved, invariant country characteristics. Here, we follow Glennerster and Shin (2003) in

<sup>24</sup> The country variations in opacity over time seem to have a large noise component. In regressions with fixed country effects, *Macropolicy Opacity II* is the only index to enter with a significantly negative, albeit small, coefficient.

**Table VIII**  
**Vector Autoregression**

The dependent variable in the ordinary least squares (OLS) regressions is the average country portfolio weight of fund  $j$  in country  $i$  in year  $t$  ( $w_{i,j,t}$ ) and the opacity indices are for country  $i$  at year  $t$ :

$$w_{i,j,t} = \alpha + w_{i,j,t-1} + \beta \cdot w_{i,t-1}^{\text{benchmark}} + \gamma \cdot \text{Opacity Index}_{i,t-1} \\ + \phi \cdot \text{Control Variables}_{i,t} + \varepsilon_{i,t},$$

$$\text{Opacity Index}_{i,j,t} = \alpha + w_{i,j,t-1} + \beta \cdot w_{i,t-1}^{\text{benchmark}} + \gamma \cdot \text{Opacity Index}_{i,t-1} \\ + \phi \cdot \text{Control Variables}_{i,t} + \varepsilon_{i,t}.$$

$t$ -Statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Coefficients that are significant at the 5% level are marked bold. Only global emerging market funds are included in the estimations. *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases. Details of the construction of the variables are described in Appendices I and II. *Macropolicy Opacity II* is an index measuring the opacity of a country's monetary and fiscal policies. *Macropolicy Opacity I* is not included in this table because it is not time varying.

	A		B	
	Country Weight	Macrodata Opacity	Country Weight	Macropolicy Opacity II
Lagged country weight	<b>0.526</b> (15.57)	0.005 (1.73)	<b>0.548</b> (15.73)	-0.010 (-1.03)
Lagged Macrodata Opacity	<b>-0.344</b> (-5.59)	<b>0.734</b> (44.23)	-	-
Lagged Macropolicy Opacity II	-	-	<b>-0.139</b> (-3.26)	<b>0.083</b> (6.33)
Lagged MSCI index	<b>0.217</b> (7.53)	<b>0.009</b> (3.50)	<b>0.226</b> (7.31)	<b>-0.073</b> (-13.36)
ICRG economic risk	<b>-0.046</b> (-3.58)	0.000 (0.03)	0.022 (0.89)	<b>-0.104</b> (-33.41)
ICRG financial risk	<b>0.035</b> (3.71)	<b>-0.006</b> (-7.15)	-0.010 (-0.69)	<b>-0.063</b> (-33.34)
ICRG political risk	<b>-0.027</b> (-4.25)	<b>0.013</b> (25.91)	<b>-0.064</b> (-4.31)	<b>-0.028</b> (-3.64)
Historical returns	<b>29.238</b> (7.25)	<b>-1.096</b> (-6.90)	<b>52.853</b> (10.47)	<b>-9.153</b> (-12.10)
GDP per capita	<b>0.004</b> (0.37)	<b>0.009</b> (19.16)	<b>0.004</b> (10.47)	<b>0.060</b> (12.26)
Turnover	<b>3.183</b> (6.78)	<b>0.316</b> (10.08)	<b>7.783</b> (6.51)	<b>2.222</b> (15.85)
Share of firms closely held	<b>-0.046</b> (-14.17)	<b>0.005</b> (14.51)	<b>-0.025</b> (-6.42)	<b>0.0002</b> (2.01)
Minority shareholders' rights	<b>-0.011</b> (-2.65)	<b>0.008</b> (16.97)	<b>-0.012</b> (-2.23)	<b>0.004</b> (3.41)
Number of obs.	2,987	2,987	1,929	1,929
Adj. $R^2$	0.61	0.59	0.65	0.46

GDP = gross domestic product; ICRG = International Country Risk Guide.

**Table IX**  
**Investment Levels: Regressions with Fixed Region Effects**

The dependent variable in all ordinary least squares (OLS) regressions is the country portfolio weight of fund  $j$  in country  $i$  at time  $t$  ( $w_{i,j,t}$ ):

$$w_{i,j,t} = \alpha_{region} + \beta \cdot Pw_{i,t}^{benchmark} + \gamma \cdot Opacity Index_{i,t} + \varepsilon_{i,t}.$$

$t$ -Statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Only global emerging market funds are included. Coefficients that are significant at the 5% level are marked bold. *Macropolicy Opacity II* is an index measuring the opacity of a country's monetary and fiscal policies. *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases. Details of the construction of the variables are described in Appendices I and II.  $\alpha_{region}$  are regional dummies for Europe, Asia, Latin America, Africa, and the Middle East, respectively. *Macropolicy Opacity I* is not used in this exercise because it is not time varying.

	<i>Macrodata Opacity</i>	<i>Macropolicy Opacity II</i>	<i>Corporate Opacity</i>	<i>Macrodata Opacity</i>	<i>Macropolicy Opacity II</i>	<i>Corporate Opacity</i>
MSCI index	<b>0.691</b> ( <b>32.54</b> )	<b>0.654</b> ( <b>23.06</b> )	<b>0.659</b> ( <b>28.67</b> )	<b>0.750</b> ( <b>37.63</b> )	<b>0.656</b> ( <b>23.07</b> )	<b>0.733</b> ( <b>29.87</b> )
Opacity index	0.031 (0.05)	-0.058 (-12.35)	-0.297 (-3.26)	-	-	-
Opacity index (lagged)	-	-	-	0.024 (0.35)	-0.032 (-5.21)	-0.682 (-7.02)
ICRG economic risk	-0.031 (-5.43)	-0.007 (-0.85)	-0.046 (-6.76)	-0.031 (-5.00)	-0.012 (-1.29)	-0.122 (-8.90)
ICRG financial risk	<b>0.022</b> ( <b>3.66</b> )	<b>0.001</b> ( <b>0.26</b> )	<b>0.012</b> ( <b>1.94</b> )	<b>0.034</b> ( <b>6.11</b> )	-0.012 (-1.37)	0.012 (1.23)
ICRG political risk	<b>0.020</b> ( <b>4.79</b> )	<b>0.001</b> ( <b>0.26</b> )	<b>0.008</b> ( <b>2.31</b> )	<b>0.018</b> ( <b>4.10</b> )	-0.009 (-1.26)	<b>0.021</b> ( <b>4.29</b> )
Historical returns	<b>21.475</b> ( <b>9.65</b> )	<b>32.013</b> ( <b>7.95</b> )	<b>20.153</b> ( <b>9.72</b> )	<b>21.238</b> ( <b>9.95</b> )	<b>34.067</b> ( <b>7.74</b> )	<b>29.971</b> ( <b>9.79</b> )
Number of obs.	79,016	49,108	80,324	68,186	46,474	27,350
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj. $R^2$	0.55	0.53	0.53	0.60	0.52	0.62

ICRG = International Country Risk Guide.

interpreting the voluntary adoption of key transparency reforms introduced by the IMF as fundamental changes in a country's transparency. As explained in Section I, these key reforms are as follows: the first voluntary publication of IMF Article IV reports, the publication of ROSCs, and the adoption of SDDS. These events allow us to pinpoint dates at which countries clearly signaled a credible commitment to more government transparency. In light of our earlier results, we should expect funds to increase their holdings in these countries following these events. By focusing on a comparison of the holdings before and after the announcement, we can control for country fixed effects in addition to the other observed, time-varying country characteristics. That is, we run a regression of the form

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot Transparency Reform Dummy + \varepsilon_{i,t}. \quad (4)$$

Here, the *Transparency Reform Dummy* is equal to 1 following the adoption of one of the three mentioned key reforms, and 0 otherwise.

The results reported in Table X confirm that these increases in country transparency translate into a statistically significant, albeit moderate increase in country weighting. The typical country adopting these transparency reforms experienced a sustained increase in country weight of 0.2 percentage points. Of course, this effect is quantitatively more important for countries that begin with a relatively small weight in the MSCI index.

One possible concern in this context is that the timing of the adoption of transparency reforms may not be entirely exogenous. Countries that are doing well and that have been attracting investment may find it easier to adopt more transparent policies. Alternatively, countries facing difficulties may experience more pressure to take measures to restore confidence, including publishing their IMF reports. To address this question, we assess whether the decision to publish can be partly explained by a previous increase in investment in the country (Panel B of Table X). We find that this is not the case.

Having assessed the overall impact of country transparency on portfolio holdings, we now examine the relation between transparency and flows during periods of market jitters.

### III. Flows during Crises

A more specific question concerns the extent to which differences in opacity help to explain which countries are more likely to be hit by outflows during crises. Are more opaque countries more prone to contagion effects? Do transparency measures, above and beyond macroeconomic indicators, explain the differential loss of confidence across countries during turbulent times?

Johnson et al. (2000) examine whether measures of corporate governance, and in particular the protection of minority shareholder rights, help explain the extent of currency depreciation and stock market decline across countries during the Asian crisis. They find that corporate governance variables can account for a larger fraction of the variation in performance than standard macroeconomic variables. The fact that their regressions contain only 25 observations, however, limits inference. For example, when including GDP per capita, the coefficients on corporate governance variables become insignificant. It is therefore not clear whether other country characteristics correlated with economic development, such as transparency as defined here, drive the results. In addition, their work does not examine the implication of government opacity in terms of macroeconomic policies and data release.

We relate the size of monthly fund flows during the Asian and Russian crises to our measures of country transparency. Specifically, we look at percentage changes in asset allocation, or flows relative to the preceding month's holdings of individual funds across countries during the most turbulent period of the Asian and Russian crises, namely, November 1997–September 1998. (We also examined the Asian and Russian crises separately and found that the main conclusions are not sensitive to the choice of horizons.) To assess whether country

**Table X**  
**Investment Levels: Effect of Country Transparency Reforms**

The dependent variable in Panel A is the country portfolio weight of fund  $j$  in country  $i$  at time  $t$  ( $w_{i,j,t}$ ):

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot Transparency\ Reform\ Dummy_{i,t} + \varepsilon_{i,t}.$$

$t$ -Statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). The IMF *Transparency Reform Dummy* for a country is equal to 1 starting with the country's first publication of an IMF Article IV Report, the observance of the Special Dissemination Standard (SDDS), or the publication of a Report on the Observance of Standards and Codes (ROSC). The estimations include only global emerging market funds. Coefficients that are significant at the 5% level are marked bold. Details of the construction of the variables are described in Appendices II and III. In Panel B, the dependent variable is the *Transparency Reform Dummy*, and the regressors are the lagged benchmark index and the lagged average country weight across funds. The dependent variable is only included until it switches from 0 to 1.

$$Transparency\ Reform\ Dummy_{i,t} = \alpha_j + \beta \cdot w_{i,t-1}^{benchmark} + \gamma \cdot \bar{w}_{i,t-1} + \varepsilon_{i,t}.$$

Panel A: Dependent Variable: Country Weights		
	Without Control Variables	With Control Variables
MSCI index	<b>0.503</b> (16.68)	<b>0.462</b> (16.00)
<i>Transparency Reform Dummy</i>	<b>0.165</b> (2.62)	<b>0.197</b> (2.87)
ICRG economic risk	–	<b>0.015</b> (2.71)
ICRG financial risk	–	<b>0.023</b> (3.81)
ICRG political risk	–	–0.003 (–0.67)
Historical returns	–	<b>17.175</b> (8.15)
Number of obs.	127,520	83,512
Country fixed effects	Yes	Yes
Adj. $R^2$	0.69	0.62
Panel B: Dependent Variable: <i>Transparency Reform Dummy</i>		
Lagged average portfolio weight	0.003 (1.35)	0.004 (1.40)
Lagged MSCI index	0.001 (0.39)	0.001 (0.42)
Lagged ICRG economic risk	–	0.001 (1.45)
Lagged ICRG financial risk	–	–0.000 (–0.61)
Lagged ICRG political risk	–	–0.001 (–1.75)
Historical returns	–	–0.300
Number of obs.	2,262	1,459
Country fixed effects	Yes	Yes
Adj. $R^2$	0.01	0.01

ICRG = International Country Risk Guide.

**Table XI**  
**Asian and Russian Crises: Fund Flows and Opacity**

Ordinary least squares (OLS) regressions with country random effects and fund fixed effects. Dependent variable: monthly flows from fund  $i$  to country  $j$  ( $f_{i,j,t}$ ), divided by lagged assets of fund  $i$  in country  $j$  ( $A_{i,j,t-1}$ ). Includes only global emerging market and international funds.

$$\frac{f_{i,j,t}}{A_{i,j,t-1}} = \alpha \cdot \text{Opacity Index}_{i,t} + \beta \cdot \text{Opacity Index} \cdot \text{Crisis Dummy} + \eta_j + v_i + \varepsilon_{i,j,t}.$$

Z-statistics are given in parentheses. Coefficients that are significantly different from 0 at the 5% level are marked bold. *Crisis Dummy* equals 1 for the period 97:11–98:09. LLSV accounting standards = 100-original accounting standard variable reported in La Porta et al. (1998). *Macropolicy Opacity I* and *II* are indices measuring the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; and *Corporate Opacity* is an index measuring the availability of information about companies. Details of the construction of the variables are described in Appendix A.

	<i>Macropolicy Opacity I</i>	<i>Macropolicy Opacity II</i>	<i>Macrodata Opacity</i>	<i>Corporate Opacity</i>	Corp. Opacity: LLSV Accounting Standards
Opacity variable	<b>-0.001</b> (-2.13)	<b>-0.004</b> (-3.11)	-0.001 (-1.02)	<b>-0.004</b> (-4.12)	<b>-0.003</b> (-7.53)
Opacity variable × <i>Crisis Dummy</i>	<b>-0.002</b> (-4.44)	<b>-0.005</b> (-5.65)	<b>-0.008</b> (-5.42)	<b>-0.002</b> (-3.00)	<b>-0.002</b> (-6.17)
$R^2$	0.01	0.02	0.01	0.01	0.02
Country random effects	Yes	Yes	Yes	Yes	Yes
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Number of countries	26	19	33	30	22
Number of obs	62,694	45,772	68,909	69,032	56,429

opacity became more important during the crisis, we include an interaction term of the opacity indices with a dummy variable which takes the value of 1 during the crisis period. The regression equation therefore takes the form

$$\frac{f_{i,j,t}}{A_{i,j,t-1}} = \alpha \cdot \text{Opacity Index} + \beta \cdot \text{Opacity Index} \cdot \text{Crisis Dummy} + \gamma \cdot \text{Control Var} + \eta_j + v_i + \varepsilon_{ijt}, \quad (5)$$

where  $f_{i,j,t}$  is the flow of fund  $j$  into country  $i$  at time  $t$ ,  $A_{i,j,t-1}$  are the assets of fund  $j$  in country  $i$  at time  $t-1$ ,  $\eta_j$  is a fund fixed effect, and  $v_i$  is a country random effect. A negative value of  $\alpha$  would indicate that less capital flows to less transparent countries. A negative value of  $\beta$  would indicate that during crises, investors shy away even more from opaque markets. Both global emerging market and international funds are included in the estimations.

Since the data set provides month-end asset positions in each country, we infer flows under some assumptions. In particular, we assume that in any given

**Table XII**  
**Asian and Russian Crises: Fund Flows and Opacity, Including Control Variables**

Ordinary least squares (OLS) regressions with country random effects and fund fixed effects. Dependent variable: monthly flows from fund *i* to country *j* ( $f_{i,j,t}$ ), divided by lagged assets of fund *i* in country *j* ( $A_{i,j,t-1}$ ). Includes only global emerging market and international funds.

$$\frac{f_{i,j,t}}{A_{i,j,t-1}} = \alpha \cdot \text{Opacity Index}_{i,t} + \beta \cdot \text{Opacity Index} \cdot \text{Crisis Dummy} + \gamma \cdot \text{Control Var} + \eta_j + v_i + \varepsilon_{i,j,t}.$$

Z-statistics are given in parentheses. Coefficients that are significantly different from 0 at the 5% level are marked bold. *Crisis Dummy* equals one for the period 97:11–98:09. LLSV accounting standards = 100-original accounting standard variable reported in La Porta et al. (1998). *Macropolicy Opacity* is an index that measures the opacity of a country’s monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; *Corporate Opacity* is an index measuring the availability of information about companies; and *O-Factor* is a broad country opacity index developed by the accounting and consultancy company PricewaterhouseCoopers. Details of the construction of the variables are described in Appendices I and II.

	<i>Macropolicy Opacity I</i>	<i>Macropolicy Opacity II</i>	<i>Macrodata Opacity</i>	<i>Corporate Opacity</i>	Corp. Opacity: LLSV Accounting Standards
Opacity variable	<b>-0.001</b> (-2.40)	<b>-0.004</b> (-2.65)	<b>-0.005</b> (-5.29)	<b>-0.008</b> (-6.67)	<b>-0.003</b> (-6.07)
Opacity variable × <i>Crisis Dummy</i>	<b>-0.002</b> (-4.29)	<b>-0.006</b> (-5.47)	<b>-0.007</b> (-4.85)	<b>-0.001</b> (-2.88)	<b>-0.002</b> (-6.26)
Turnover	<b>0.072</b> (6.77)	<b>0.102</b> (9.34)	<b>0.103</b> (8.49)	<b>0.116</b> (11.15)	<b>0.748</b> (7.76)
GDP per capita	<b>0.0001</b> (3.83)	0.000 (0.57)	<b>0.0004</b> (2.99)	<b>-0.004</b> (-2.94)	<b>-0.004</b> (-2.93)
ICRG economic risk (lagged 1 month)	<b>-0.0004</b> (-2.16)	0.004 (1.83)	<b>-0.0002</b> (-1.09)	<b>-0.0004</b> (-2.18)	0.0002 (1.10)
ICRG financial risk (lagged 1 month)	<b>0.001</b> (3.89)	<b>-0.0003</b> (-1.96)	<b>0.001</b> (4.19)	0.0002 (1.80)	<b>0.0005</b> (3.10)
ICRG political risk (lagged 1 month)	-0.0001 (-1.25)	<b>-0.0004</b> (-4.86)	<b>-0.002</b> (-3.47)	<b>-0.0002</b> (-3.64)	<b>-0.0002</b> (-2.30)
$R^2$	0.01	0.02	0.01	0.01	0.01
Country random effects	Yes	Yes	Yes	Yes	Yes
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Number of countries	25	19	33	30	22
Number of obs	59,287	43,823	65,833	65,905	54,080

GDP = gross domestic product; ICRG = International Country Risk Guide.

country, the funds hold a portfolio of stocks that is well approximated by the International Finance Corporation (IFC) investable index.<sup>25</sup> We also assume

<sup>25</sup> Where the IFC does not compute an investable index, we use the global index. For countries not covered by the IFC, we employ MSCI U.S. dollar index data or national indices converted into U.S. dollars.

**Table XIII**  
**Asian and Russian Crises: Fund Flows and Opacity, Including**  
**Control Variables and Country Fixed Effects**

Ordinary least squares (OLS) regressions with country fixed effects and fund fixed effects. Dependent variable: monthly flows from fund  $i$  to country  $j$  ( $f_{i,j,t}$ ), divided by lagged assets of fund  $i$  in country  $j$  ( $A_{i,j,t-1}$ ). Includes only global emerging market and international funds.

$$\frac{f_{i,j,t}}{A_{i,j,t-1}} = \alpha \cdot \text{Opacity Index}_{i,t} + \beta \cdot \text{Opacity Index} \cdot \text{Crisis Dummy} + \gamma \cdot \text{Control Var} + \eta_j + v_i + \varepsilon_{i,j,t}.$$

Z-statistics are given in parentheses. Coefficients that are significantly different from 0 at the 5% level are marked bold. *Crisis Dummy* equals one for the period 97:11–98:09. LLSV accounting standards = 100-original accounting standard variable reported in La Porta et al. (1998). *Macropolicy Opacity II* is an index that measures the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; and *Corporate Opacity* is an index measuring the availability of information about companies. Details of the construction of the variables are described in Appendices I and II.

	<i>Macrodata Opacity</i>	<i>Corporate Opacity</i>	<i>Macropolicy Opacity II</i>
Opacity variable	-0.001 (0.49)	<b>-0.024</b> <b>(-5.87)</b>	<b>-0.001</b> <b>(-5.02)</b>
Opacity variable × <i>Crisis Dummy</i>	<b>-0.007</b> <b>(-4.50)</b>	<b>-0.001</b> <b>(-2.88)</b>	<b>-0.005</b> <b>(-4.49)</b>
ICRG economic risk (lagged 1 month)	0.000 (1.62)	0.000 (1.32)	0.000 (1.37)
ICRG financial risk (lagged 1 month)	<b>-0.000</b> <b>(-2.93)</b>	-0.000 (1.71)	-0.000 (1.41)
ICRG political risk (lagged 1 month)	0.000 (0.40)	0.000 (0.63)	0.000 (1.19)
$R^2$	0.01	0.01	0.02
Country fixed effects	Yes	Yes	Yes
Fund fixed effects	Yes	Yes	Yes
Number of countries	33	30	19
Number of observations	65,817	65,888	43,799

ICRG = International Country Risk Guide.

that flows occur halfway through the period. We therefore approximate the investment flow from fund  $j$  to country  $i$  in month  $t$  in the following way:

$$f_{i,j,t} = [\text{Asset}_{i,j,t} - \text{Asset}_{i,j,t-1}(1 + \text{Index return}_{i,t})]/(1 + \text{Index return}_{i,t})^{1/2}. \quad (6)$$

Consistency checks, which can be conducted for closed-end funds, show that our approximation is reasonable.<sup>26</sup>

The basic results from estimating equation (5) are reported in Table XI. In all cases, the interaction terms of the opacity index and the crisis dummy are negative and significant at the 5% level, indicating that fund managers tended to avoid opaque countries to a larger extent during the crises. This is particularly

<sup>26</sup> The correlation between imputed and actual changes in total assets is 0.93.

**Table XIV**  
**Asian and Russian Crises: Horse Race among Opacity Indices**

Ordinary least squares (OLS) regressions with country random effects and fund fixed effects. Dependent variable: monthly flows from fund  $i$  to country  $j$  ( $f_{i,j,t}$ ), divided by lagged assets in country  $j$  ( $A_{i,j,t-1}$ ), covering the period 97:11–98:09.

$$\frac{f_{i,j,t}}{A_{i,j,t-1}} = \alpha \cdot \text{Opacity Index}_{i,t} + \beta \cdot \text{ControlVar} + \eta_j + v_i + \varepsilon_{i,j,t}.$$

Only global emerging market and international funds are included in the estimations. Regressions include fund fixed effects and country random effects. Z-statistics are given in parentheses. LLSV accounting standards = 100-original accounting standard variable reported in La Porta et al. (1998). *Macropolicy Opacity* is an index that measures the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; and *Corporate Opacity* is an index measuring the availability of information about companies. Details of the construction of the variables are described in Appendices I and II.

<i>Macrodata Opacity</i>	0.007 (0.46)
<i>Macropolicy Opacity I</i>	-0.003 (-0.05)
<i>Macropolicy Opacity II</i>	<b>-0.016</b> <b>(-5.22)</b>
<i>Corporate Opacity</i>	0.008 (0.72)
Turnover	0.014 (0.18)
GDP per capita	0.002 (1.12)
ICRG economic risk (lagged 1 month)	-0.0008 (-1.02)
ICRG financial risk (lagged 1 month)	0.0008 (1.39)
ICRG political risk (lagged 1 month)	-0.0001 (-0.19)
$R^2$	0.05
Country random effects	Yes
Fund fixed effects	Yes
Number of countries	22
Number of obs	4,294

GDP = gross domestic product; ICRG = International Country Risk Guide.

noteworthy in light of the conservative estimation technique that includes country random effects in addition to individual fund fixed effects. These country random effects can be expected to absorb a significant fraction of the variation in country characteristics. The behavior during crises reflects an accentuation of a negative effect of opacity on country flows that also exists during tranquil times; this is consistent with our earlier results regarding holdings. As can be observed in Table XII, the results are robust to controlling for other variables.<sup>27</sup>

<sup>27</sup> Note that in all regressions on capital flight during the crises (Tables XI–XIV), the  $R^2$  are low. This reflects the fact that changes in the investment positions are much more challenging to explain than the positions themselves.

Instead of the ICRG risk measures, we also use crisis probabilities as predicted by the early warning model of Berg and Pattillo (1999) and Kaminsky, Lizondo, and Reinhart (1998) as controls, without changing the main results (not shown to save space).

As a robustness check, we employ the index of accounting standard quality used by LLSV mentioned earlier. The measure was published in 1991 and hence is predetermined relative to the investment positions of the funds in our sample. It turns out that the results using this variable are very similar to the ones obtained with *Corporate Opacity*.

The use of country fixed effects instead of random effects does not affect the main results. For the three regressions with time-varying opacity indices, *Macrodata Opacity*, *Macropolicy Opacity II*, and *Corporate Opacity*, the interaction terms for the crisis period remain significant when including country fixed effects. The coefficient on the interaction term for *Macrodata Opacity* remains unchanged, while the other two are somewhat lower (Table XIII).

A horse race between the three opacity indices for the crisis period (reported in Table XIV) suggests that *Macropolicy Opacity II* is the most important dimension of country opacity, influencing flows during the crisis period.<sup>28</sup> A country in the top 75<sup>th</sup> percentile of *Macropolicy Opacity II* saw average monthly withdrawals that exceeded those from countries at the 25<sup>th</sup> percentile by an average of 1.6% (relative to holdings in the previous month).

#### IV. Conclusion

This paper represents a first assessment of the impact of country transparency on the behavior of international investment funds. We find that international funds prefer to hold more assets in more transparent markets. Moreover, there is some evidence that during a crisis, international investors tend to flee more opaque markets to a greater extent.

This suggests that becoming more transparent can be an effective way for countries to benefit from international financial integration while avoiding excessive volatility during turbulent times.

The fact that foreign institutional investors dislike country opacity does not necessarily imply that domestic investors prefer opacity, and it would be useful to investigate this directly in future research.<sup>29</sup> We conjecture that the effects of

<sup>28</sup> Again, possible multicollinearity cautions against interpreting this result too strongly.

<sup>29</sup> There is a substantial literature on the relative informational (dis)advantage of foreign investors. Brennan and Cao (1997) argue that foreign investors suffer from informational disadvantage vis-à-vis domestic investors. In a similar vein, in a study of Mexican corporate news announcements, Bhattacharya et al. (2000) provide evidence suggesting that due to insider trading, prices incorporate news before their public release. In particular, the differential reaction of shares that can be held by foreigners compared to those that are restricted to Mexican citizens suggests an informational disadvantage of foreigners. Frankel and Schmukler (2000) show that before the 1994 crisis, Mexican capital fled their country's market before foreign capital. On the other hand, Seasholes (2000) shows that foreign investors earn economically significant profits in emerging equity markets, and evidence presented in Disyatat and Gelos (2001) supports this view. Choe, Kho, and Stulz (2001) study the case of Korea, presenting a mixed picture. Albuquerque, Bauer,

opacity documented here likely represent a lower bound as we only investigate the behavior of specialized emerging market funds. Investors not specialized in emerging markets are likely to be even more adverse to opacity. It would be fruitful to contrast our findings with the behavior of other players in international capital markets.

## Appendix A: Opacity Measures

### A. Corporate Opacity

The Global Competitiveness Report includes results from surveys about a country's level of financial disclosure. The survey data come from the Executive Opinion Survey, conducted each year by the World Economic Forum, which measures the perceptions of over 3,000 executives about the country in which they operate. The survey covers 53 countries. On financial disclosure, the respondents had to assess the validity of the statement "The level of financial disclosure required is extensive and detailed" with a score from 1 (strongly disagree) to 7 (strongly agree). We use the numbers appearing in the 2000 and 1999 issues (the questions were not covered in other issues), which are based on surveys carried out around January–February of those years. We form the variable *Findis* by subtracting the original variable from 8. Similarly, the Global Competitiveness Report surveys the degree of "availability of information" about business. Again, we use the numbers appearing in the 2000 and 1999 issues, and form the variable *Avail* by subtracting the original variable from 8. We construct a new summary variable, equal to the simple average of *Avail* and *Findis*, which we call *Corporate Opacity*.

### B. Government Opacity

#### B.1. Opacity of Macroeconomic Policies

For our first index, we rely on two measures developed by Oxford Analytica. Wilshire Associates (2002) commissioned this work as part of an investment analysis on "permissible equity markets" produced for the CalPers. Oxford Analytica delivered detailed reports for 27 countries and it assigned a score from 1 (least transparent) to 5 (most transparent) to fiscal and monetary policy. The reports were based to a significant extent on the IMF's recent ROSCs—the IMF, however, did not assign scores to individual countries. ROSCs summarize the extent to which countries observe certain internationally recognized standards and codes in 12 areas. The relevant ROSCs in this context assess IMF member countries' monetary and fiscal policy institutions. The IMF *Code of Good Practices on Fiscal Transparency* is available at <http://www.imf.org/external/np/fad/trans/code.htm>, and the IMF *Code of Good Practices in Financial and Monetary Policies* is downloadable under <http://www.imf.org/external/np/mae/mft/code/index.htm>. For example, the code

and Schneider (2002) argue that foreigners are at an informational disadvantage when it comes to domestic factors but at an advantage regarding global factors.

**Table AI**  
**Scoring System Used for Calculation of Data Frequency**  
**and Timeliness Scores**

	Points Scored						SDDS Prescription
	0	2	5	8	9	10	
Scoring system for data frequency	(Periodicity of compilation) <sup>a</sup>						
Real sector indicators							
Gross domestic product	n/a		A	2Q		Q	Q
Consumer price index	n/a	A	Q			M	M
Budgetary indicators							
Overall government balance	n/a	A	Q			M	M (central govt.)
Monetary sector indicators							
Reserve/base money	n/a	A	Q			M	M (W encouraged)
Central bank balance sheet	n/a	A	Q			M	M (W encouraged)
Broad money	n/a	A	Q			M	M
Interest rates	n/a	A	Q	M	2W	W	D
External sector indicators							
International reserves	n/a	A	Q			M	M (W encouraged)
Exchange rates	n/a	A	Q	M	2W	W	D
Exports/imports	n/a	A	Q			M	M
Current account balance	n/a		A	2Q		Q	Q
External debt	n/a		A	2Q		Q	Q (central govt.)
Scoring system for data timeliness	(Lag in data availability in months) <sup>b</sup>						
Real sector indicators							
Gross domestic product	n/a	10+	7-9	4-6		1-3	Q
Consumer price index	n/a	5+	3-4	2		1	M
Budgetary indicators							
Overall government balance	n/a	5+	3-4	2		1	M (central govt.)
Monetary sector indicators							
Reserve/base money	n/a	5+	3-4	2		1	2W (W encouraged)
Central bank balance sheet	n/a	5+	3-4	2		1	2W (W encouraged)
Broad money	n/a	5+	3-4	2		1	M
Interest rates	n/a	5+	3-4	2		1	- <sup>c</sup>
External sector indicators							
International reserves	n/a	5+	3-4	2		1	W
Exchange rates	n/a	5+	3-4	2		1	- <sup>c</sup>
Exports/imports	n/a	5+	3-4	2		1	8W (4-6W encouraged)
Current account balance	n/a	10+	7-9	4-6		1-3	Q
External debt	n/a	10+	7-9	4-6		1-3	Q (central govt.)

Source: Table reproduced from Allum and Agca (2001).

<sup>a</sup>A = Annual; Q = Quarterly; 2Q = Semiannual; M = Monthly; W = Weekly; 2W = Biweekly.

<sup>b</sup>Defined as difference between final month in reporting period to month of data availability.

<sup>c</sup>Widely available from private sources. To be part of other (preferably, high frequency) official dissemination products.

of good practices on fiscal transparency stresses the clarity of roles and responsibilities of the government, public availability of information, open budget preparation, execution, reporting, and integrity assurances as general guidelines. We use the sum of Oxford Analytica's scores, which range from 3 to 8, subtract it from 10, and label the new variable *Macropolicy Opacity I*.

**Table AII**  
**Opacity Measures (Averages)**

Economy	<i>O-Factor</i> (Composite)	<i>Macrodata</i> <i>Opacity</i>	<i>Macropolicy</i> <i>Opacity I</i>	<i>Macropolicy</i> <i>Opacity II</i>	<i>Corporate</i> <i>Opacity</i>	LLSV Accounting Opacity
Argentina	40	0.20	2	0.626	3.13	55
Bangladesh	–	1.79	–	–	–	–
Botswana	–	3.32	–	–	–	–
Brazil	34	0.11	2	1.817	3.03	46
Chile	23	0.62	2	0.500	2.20	48
China	–	1.87	7	1.199	4.23	–
Colombia	39	1.27	3	–	3.57	50
Czech Rep.	41	0.27	2	0.900	3.76	–
Ecuador	42	0.55	–	–	5.06	–
Egypt	39	1.81	6	–	3.66	76
Ghana	–	2.20	–	–	–	–
Greece	37	1.55	–	–	3.13	45
Hong Kong SAR	29	1.94	–	1.432	2.18	31
Hungary	31	0.35	2	1.550	3.23	–
India	38	1.45	4	1.097	3.22	43
Indonesia	47	0.71	4	2.623	3.83	65
Israel	35	0.63	3	–	2.29	36
Jordan	–	1.24	5	–	3.17	–
Kenya	43	1.13	–	–	–	–
Korea	42	1.00	3	0.865	3.25	38
Malaysia	–	0.86	4	0.828	2.86	24
Mauritius	–	2.91	–	–	3.14	–
Mexico	33	0.32	3	1.683	3.36	40
Morocco	34	1.59	4	–	–	–
Pakistan	38	1.10	7	–	–	61
Peru	38	0.46	3	–	3.39	62
Philippines	37	0.38	3	–	3.40	35
Poland	44	0.51	3	0.850	3.33	–
Portugal	–	0.56	–	–	2.88	64
Romania	–	0.41	–	–	–	–
Russia	55	0.34	5	25.050	4.21	–
South Africa	34	0.73	3	–	2.55	30
Singapore	22	0.84	–	0.570	2.06	22
Slovak Rep.	38	0.27	–	1.800	3.78	–
Sri Lanka	–	1.12	6	–	–	–
Taiwan POC	37	–	4	0.434	2.59	35
Thailand	42	0.51	5	1.039	3.75	36
Turkey	46	0.50	5	6.267	2.89	49
Venezuela	42	0.90	6	7.317	4.28	60
Zimbabwe	46	1.40	–	–	3.17	–

Sources: Authors' calculations based on data from Global Competitiveness Report, IMF, Oxford Analytica, and PricewaterhouseCoopers (see preceding text). *Macropolicy Opacity I and II* are indices that measure the opacity of a country's monetary and fiscal policies; *Macrodata Opacity* is an index of the timeliness and frequency of macroeconomic data releases; *Corporate Opacity* is an index measuring the availability of information about companies; and, *O-Factor* is a broad country opacity index developed by the accounting and consultancy company PricewaterhouseCoopers. Details of the construction of the variables are described in Appendix A.

For our second index, we use the standard deviation of expected inflation rates for current-year inflation across survey participants in the *Consensus Forecasts* January surveys. For a large number of emerging markets, the company Consensus Forecasts conducts surveys across banks and other market analysts, reporting individual forecasts of participants.<sup>30</sup> The typical number of surveyed participants is about 20. We call this index *Macropolicy Opacity II*.

### *B.2. Frequency and Timeliness of Macroeconomic Data Dissemination*

The IMF has computed indices of the frequency and timeliness of national authorities' macroeconomic data dissemination for all its member countries. The indices are available for 1996, 1997, and 2000 (see Allum and Agça, 2001). We use the average of these three values and subtract it from 10. Then, we construct a simple average of the two variables and call it *Macrodata Policy*. For 1998 and 1999, we use the 1997 values.

### *C. A Composite Index*

For 35 countries, the accounting and consulting company PwC has conducted a survey of banks, firms, equity analysts, and in-country staff during the third and fourth quarters of the year 2000 to generate measures of opacity in five areas (PricewaterhouseCoopers, 2001): bureaucratic practices (corruption), legal system, government macroeconomic policies, accounting standards and practices, and regulatory regime. PwC aimed at interviewing at least 20 CFOs, five bankers, five equity analysts, and five PwC employees in each country.

Some selected examples of questions asked are the following:

#### *C.1. Economic Opacity*

- (a) [COUNTRY]'s fiscal policies change predictably in response to prevailing economic conditions.
  - 1. Strongly agree
  - 2. Somewhat agree
  - 3. Somewhat disagree
  - 4. Strongly disagree
  - 5. DON'T KNOW
  - 6. REFUSED
- (b) The monetary policies of [COUNTRY]'s central bank change predictably in response to prevailing economic conditions.
  - 1. Strongly agree
  - 2. Somewhat agree
  - 3. Somewhat disagree

<sup>30</sup> See Eastern Europe Consensus Forecasts, Latin American Consensus Forecasts, and Asia Pacific Consensus Forecasts (various issues).

4. Strongly disagree
5. DON'T KNOW
6. REFUSED

### C.1.2. Accounting Opacity

- (c) How confident are you that financial information reported by the following organizations in [COUNTRY] adheres to established accounting standards? Would you say very confident, somewhat confident, not very confident, or not at all confident?
1. Very confident
  2. Somewhat confident
  3. Not very confident
  4. Not at all confident
  5. DON'T KNOW
  6. REFUSED

Similar questions were asked in four other areas. Details of the questionnaire and the scoring methods are available under <http://www.opacity-index.com/>. Based on the simple average scoring for the surveys in five areas, PwC produced an aggregate score called the *O-Factor*.

## Appendix B: Adoption of IMF Transparency Reforms

### Appendix C: Data from International Country Risk Guide (ICRG)

The International Country Risk Guide (ICRG) provides monthly values for 22 components grouped into three major categories of risk: Political, financial,

**Table AIII**  
**Date of Adoption of IMF Transparency Reforms**  
**(Until December 2000)**

Country	Date of First Article IV Report Publication	Date of First ROSC Publication	Date of SDDS Observance
Argentina	12/00	4/99	11/99
Colombia	12/99	–	5/00
Ecuador	–	–	7/00
Korea	–	–	11/99
Malaysia	–	12/00	9/00
Mexico	–	–	6/00
Peru	–	–	7/99
Poland	3/00	12/00	3/00
Russia	11/00	–	–
South Africa	–	–	9/00
Thailand	–	–	5/00
Turkey	–	6/00	–

**Table AIV**

Political Risk Components	Financial Risk Components	Economic Risk Components
Government stability	Foreign debt as a percentage of GDP	GDP per head of population
Socioeconomic conditions	Foreign debt service as a percentage of exports of goods and services (XGS)	Real annual GDP growth
Investment profile	Current account as a percentage of XGS	Annual inflation rate
Internal conflict	Net liquidity as months of import cover	Budget balance as a percentage of GDP
External conflict	Exchange rate stability	Current account balance as a percentage of GDP
Corruption		
Military in politics		
Religious tensions		
Law and order		
Ethnic tensions		
Democratic accountability		
Bureaucracy quality		

GDP = gross domestic product.

and economic, with political risk comprising 12 components, financial risk 5 components, and economic risk 5 components. Each component is assigned a maximum numerical value (risk points), with the highest number of points indicating the lowest potential risk for that component and the lowest number (0) indicating the highest potential risk. The maximum points able to be awarded to any particular risk component is preset within the system and depends on the importance (weighting) of that component to the overall risk of a country.

The ICRG staff collects political, economic, and financial information, and converts these into risk points for each individual risk component. The political risk assessments are made on the basis of subjective analysis of the available information, while the financial and economic risk assessments are made solely on the basis of objective data.

The components, which are added to construct a risk rating for each subcategory, are listed below. For further details, see [http://www.prsgroup.com/commonhtml/methods.html#\\_International\\_Country\\_Risk](http://www.prsgroup.com/commonhtml/methods.html#_International_Country_Risk).

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