

DISCUSSION PAPER SERIES

No. 4476

TRANSPARENCY AND INTERNATIONAL PORTFOLIO HOLDINGS

R Gaston Gelos and Shang-Jin Wei

*INSTITUTIONS AND ECONOMIC
PERFORMANCE*



Centre for **E**conomic **P**olicy **R**esearch

www.cepr.org

Available online at:

www.cepr.org/pubs/dps/DP4476.asp

TRANSPARENCY AND INTERNATIONAL PORTFOLIO HOLDINGS

R Gaston Gelos, International Monetary Fund (IMF)
Shang-Jin Wei, International Monetary Fund (IMF)

Discussion Paper No. 4476
July 2004

Centre for Economic Policy Research
90–98 Goswell Rd, London EC1V 7RR, UK
Tel: (44 20) 7878 2900, Fax: (44 20) 7878 2999
Email: cepr@cepr.org, Website: www.cepr.org

This Discussion Paper is issued under the auspices of the Centre's research programme in **INSTITUTIONS AND ECONOMIC PERFORMANCE**. Any opinions expressed here are those of the author(s) and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as a private educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions. Institutional (core) finance for the Centre has been provided through major grants from the Economic and Social Research Council, under which an ESRC Resource Centre operates within CEPR; the Esmée Fairbairn Charitable Trust; and the Bank of England. These organizations do not give prior review to the Centre's publications, nor do they necessarily endorse the views expressed therein.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

Copyright: R Gaston Gelos and Shang-Jin Wei

CEPR Discussion Paper No. 4476

July 2004

ABSTRACT

Transparency and International Portfolio Holdings*

Does country transparency affect international portfolio investment? We examine this question by constructing new measures of transparency and by making use of a unique micro dataset on portfolio holdings of emerging market funds around the world. We distinguish between government and corporate transparency. There is clear evidence that funds invest systematically less in less transparent countries. There is also some evidence that during crises, funds flee from non-transparent countries to a greater extent.

JEL Classification: I20

Keywords: international portfolio investment and opacity

R Gaston Gelos
Research Department
International Monetary Fund
700 19th St., NW
Washington, D.C. 20431
USA
Email: ggelos@imf.org

Shang-Jin Wei
Research Department, Room 10-700
International Monetary Fund
700 19th Street, N.W.
Washington, DC 20431
USA
Tel: (1 202) 623 5980
Fax: (1 202) 623 7271
Email: swei@imf.org

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=157465

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=118239

*The authors wish to thank Philippe Bacchetta, Andrew Berg, Patrick Bolton, Tito Cordella, Kristin Forbes, Douglas Gale, Leora Klapper, Philippe Martin, Paolo Mauro, Alessandro Prati, Roberto Rigobon, David Robinson, Nouriel Roubini, Antonio Spilimbergo, Jiang Wang, and seminar participants at the IMF, Vanderbilt University, the CEPR, the Fourth Annual Conference on Financial Development in Emerging and Transition Economies, and the LAEBA Conference on Globalization for helpful discussions, Torbjörn Becker, Przemek Gajdeczka, Petra Geraats, Graciela Kaminsky, Anna Meyendorff, Hunter Monroe, and Anthony Richards for detailed comments on earlier drafts, and Peter Allum for sharing data. Neşe Erbil and Chi Nguyen provided excellent research assistance. The views in the Paper are the authors' own and may not reflect those of the IMF or any other organization that they are or have been associated with.

Submitted 12 May 2004

The merits of transparency have recently been widely emphasized both in the context of 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 intransparent countries (see IMF, 2001). In the corporate finance context, there is a new literature emphasizing how earnings opacity affects equity returns (see, for example, Bhattacharya, Daouk, and Welker, 2003). There is also some evidence that cross-country differences in corporate governance may be related to economywide outcomes during financial market crises (Johnson et al., 2000).

This paper examines if and how the holdings of international investors are affected by country transparency and whether this effect becomes more pronounced during crises. So far, there is no theoretical paper that has modeled explicitly the effect of a country's transparency on the level of international portfolio investment.¹ At the corporate level, Diamond and Verrechia (1991), among others, have argued that a reduction in informational asymmetry can increase the 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).

It seems reasonable to extrapolate from this literature that an improvement in a country's transparency can be expected to lead to an increase in the level of investment by international mutual funds.² Despite the theoretical presumption, empirically, the effect of transparency on the level of international portfolio investment is largely virgin territory.

¹ A number of fundamental issues on the effects of transparency are nicely discussed in Geraats (2002).

² 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, and Tesar and Werner, 1995). Informational asymmetry between domestic and foreign investors has been hypothesized to be a

Apart from the novelty of the questions examined, two important features of the paper are the construction of transparency measures and the use of a unique micro investment data set containing the country allocation of over 400 emerging market funds at a monthly frequency over 1996-2000.

The assembly of the transparency indices may be a contribution of this paper by itself. We distinguish between government and corporate transparency. Within the category of government transparency, we further differentiate between macroeconomic data availability (timeliness and frequency) and transparency in the conduct of macroeconomic policies. Corporate transparency refers to availability of financial and other business information about firms in a country. It turns out that each measure contains information not captured by the other ones³. For example, the correlation between corporate transparency and government data transparency is 0.02, and the correlation between corporate transparency and government macropolicy transparency is 0.54.

The main findings of the paper can be summarized here. First, there is relatively clear evidence that low transparency – or high opacity – in an emerging market tends to reduce the level of investment by international funds in that market. Government opacity and corporate opacity have separate, depressing effects on investment. Second, during crises, capital flight is bigger in less transparent countries.

possible explanation (Stulz, 1981; Ahearne, Grier, and Warnock, 2001). However, to our knowledge, there is no paper that uses an explicit measure of the degree of non-transparency/information asymmetry and links it to the extent of underinvestment by investors worldwide. In a related vein, 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, Daouk, and Welker (2003) study the effects of earnings opacity on equity returns across countries and over time.

³ Note that we do not focus on corruption, the rule of law, or specific corporate governance aspects, such as the degree of minority shareholder protection discussed in this paper. Rather, we try to capture as accurately as possible the notion of information quality and availability.

2. Data

Two sets of variables are crucial 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 transparency. We explain the two data sets in turn.

2.1. 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.⁴ 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 percent of the total stock market capitalization in August of 1998, while the share was around 2.5 in 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.

⁴ 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.

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, total portfolio equity flows to developing countries amounted to US\$7.4 billion, compared to US\$2.5 billion flows (equivalent to about 34 percent) recorded in our database.

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 percent of all dedicated emerging market funds, with a coverage of about 90 percent of total emerging market fund assets. When we inquired about possible sources of selection bias, the provider stated that there was no clear characteristic (such as performance or size) that distinguished those funds who agreed to provide data from those that did not.⁵

2.2. Measuring (Lack of) Transparency

In this paper, 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. Within the category of government opacity, we construct separate measures for opacity in macroeconomic policies and opacity in the availability of macroeconomic information. For corporate opacity, we work with an index of availability and reliability of corporate accounting information. In addition, we use a new composite index of opacity intended to combine information about opacity in accounting, regulation, the legal system, economic policy, and bureaucratic corruption. This index potentially crosses the distinction between government and corporate opacity.

⁵ E-mail correspondence with Ian Wilson from eMergingPortfolio.com on Aug. 5, 2003.

Government Opacity

On government transparency, we look into two separate aspects. The first concerns the frequency and timeliness of government information release, and the second concerns the transparency and predictability of a government's macroeconomic policies.

We construct a measure of macroeconomic data opacity based on two indices developed by the IMF on the frequency and timeliness of national authorities' macroeconomic data dissemination. 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 timeliness of the data as measured by the lag between the date of the survey and the reporting period of the data provided in the survey (see Allum and Agca, 2001). The survey responses were scored for frequency and timeliness on a scale of 0 to 10, where 10 corresponds to practices broadly consistent with the IMF's Special Data Dissemination Standards (SDDS).⁶ Table AI provides details of the scoring method. We subtract the values of these indices from ten, construct a simple average of the two variables for each year and call it **MACRODATA OPACITY**. For the years 1998 and 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 or quality of the data.

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

⁶ The SDDS was introduced and subsequently strengthened in response to the perception that inadequate data provision, in particular about international reserves, had precipitated or exacerbated the Mexican and Thai crises.

policies produced by the IMF.⁷ Because the ratings are largely based on the degree to which a government's conduct of macro policies conforms to the prescribed standards and codes rather than on realized values of inflation or fiscal deficits, they have, in principle, been filtered by the impact of exogenous shocks to the economy. We add these scores, subtract the sum from ten, and label this variable **MACROPOLICY OPACITY I** (for more details, see Appendix I).

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. 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**. In contrast to **MACROPOLICY OPACITY I**, the index varies from year to year. One possible drawback of the dispersion index is that a higher dispersion of beliefs may not only be the result of policy opacity but 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 GDP growth), it is not

⁷ 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 countries' 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.

very susceptible to this problem. In any case, it is a useful complementary measure to MACROPOLICY OPACITY I.

In an additional exercise, 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 1990's, 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: the first voluntary publication of IMF Article IV reports (regular comprehensive economic "health check-ups" by the IMF staff whose publication require the country's consent), the publication of the aforementioned ROSCs, and the adoption of the so-called Special Data Dissemination Standard (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 AIV in the Appendix).

Corporate Opacity

The annual Global Competitiveness Report produced by the World Economic Forum includes results from surveys about the level of financial disclosure and availability of information about companies in the years 1999 and 2000. The survey measures the perceptions of over 3,000 executives about the country in which they operate and covers 53 countries. 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). Based on these results, we construct a summary variable called **CORPORATE OPACITY** (further details are given in Appendix I).

Composite Opacity

The accountancy 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. PricewaterhouseCoopers aimed at interviewing at least 20 CFOs, five bankers, five equity analysts, and five PricewaterhouseCoopers employees in each country. The scoring for the five areas were aggregated to form a single index (see Appendix for more details). Following PwC, we call this composite measure of opacity **O-FACTOR**.

Correlation among the Opacity Measures and Relation to Other Indices

The different measures of opacity indeed appear to capture different aspects of country opacity: the correlation among them is generally positive but far from perfect (Table II).⁸ The overall measure OFACTOR is 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 relations between CORPORATE OPACITY and OFACTOR on the one hand and MACRODATA OPACITY on the other hand are low. To highlight that the opacity indices capture something different than just economic development, 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, but the correlations are far away from -1.

How do our indices of corporate opacity relate to those constructed using micro data on companies? Recently, Bhattacharya, Daouk, and Welker (2003) constructed indices of earnings opacity of companies in 34 countries. Specifically, they built 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 earnings, and an “earnings

⁸ A list of countries in our sample and their associated opacity measures are given in Table A1.

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 and our indices 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, OFACTOR 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 OFACTOR and 0.46 for the case of CORPORATE OPACITY, and the null hypothesis of independence can be rejected at the 2 and 8 percent level of confidence, respectively. Therefore, our measure of corporate opacity is likely related to their earnings opacity.

Additional control variables

When trying to ascertain the effects of transparency above 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 will make a substantial effort to address this issue. First, we will control for a long list of country characteristics that can be suspected of being correlated with transparency. Second, we will employ alternative estimations with fixed effects which allows us to control for any unobserved, time-invariant regional and country factors.

3. Empirical Results

3.1 Transparency and Country Asset Allocation

In this sub section, we assess whether global and emerging market funds allocate less money to less transparent countries. To do this, we need a benchmark on how international mutual funds would invest if all countries were equal on the transparency dimension. We take as our guidance the International Capital Asset Pricing Model, which predicts that international investors should hold each country's asset in proportion to its share in the world market portfolio.⁹ As an empirical proxy for the world market portfolio, we choose the popular MSCI Emerging Markets Free (EMF) Index produced by Morgan Stanley. The index is based essentially on the market capitalization of a country's stocks that is available to foreign investors, capturing the effect of restrictions on foreign ownership. It is common for asset managers to use this index as their performance benchmark and to 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, to a large extent, be explained 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 mutual funds' investment position after taking into account the country's share in the MSCI EMF index. (We will also add other control variables later on.) The regressions are of the form:

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

where $w_{i,j,t}$ denotes the weight of country i in fund j 's portfolio at the end of period t and α_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

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

clustering of the errors around the j dimension to avoid artificially inflated t-statistics.¹⁰ The coefficient on *OpacityIndex* would be negative if global and emerging markets funds systematically invested less in less transparent countries.

Here, we focus on dedicated global emerging market funds, which are constrained to invest in these countries and who typically use the MSCI index performance as their benchmark. For this group of funds, our main control variable, the MSCI weight, is therefore appropriate. Within this class of funds, approximately fifteen percent are closed-end funds.¹¹

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, this ignores any effect of transparency on a country’s share in the MSCI EMF index itself. It seems plausible that less transparency 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.¹² One possible way of addressing this is to first run a regression of the MSCI

¹⁰ See Rogers (1993). A less efficient alternative is to simply form averages by fund and allowing for serial correlation by country, and we obtain very similar results when proceeding this way. A related problem concerns the estimation of the effect of aggregate variables on micro data, since it 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.

¹¹ We do not exclude closed-end funds; none of the conclusions drawn below is affected by their in- or exclusion.

¹² 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, i.e. 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

(continued...)

index on the respective opacity index and include only the residual from that regression as 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 in the index itself.

The regression results are presented in Table III. The estimates based on specification (1) are reported in Panel A. Without exception, lack of transparency in a country is associated with less investment by international funds. The overall opacity index (the OFACTOR) and all four other indices of opacity are statistically significantly and negatively correlated with country weights.¹³ In the 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. (1) Funds might prefer to be overweight in more liquid markets, and transparency measures might be proxying for market liquidity. Therefore, we include average turnover (average monthly value traded divided by mean market capitalization) as an additional variable. (2) Fund managers could prefer countries with strong protection of minority shareholders, and transparency might pick up this effect. Therefore, we include a summary variable on minority shareholder rights constructed by La Porta, López de Silanes, Shleifer, and Vishny (1998) and extended by Pistor, Raiser and Gelfer (2000). (3) Countries classified by us as less transparent may be countries with closely held stock ownership. Dahlquist,

Kaminsky and Leora Klapper for discussions on this issue and to Sergio Schmukler for providing us with data on ADRs.

¹³ Ahearne, Grier, and Warnock (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.

Pinkowitz, Stulz, and Williamson (2002) 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 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. (4) 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. (5) Opacity indices may be capturing country risks more broadly rather than those specifically associated with lack of transparency. We therefore include monthly summary risk variables for economic, financial, and political risk produced by International Country Risk Guide.¹⁴ Note that this in some sense 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.¹⁵ We also include a three-year moving average of mean returns to capture the possibility that fund managers are return chasing.

When including 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 mostly, though not always, have the expected signs and are often statistically significant¹⁶.

¹⁴ For details, see the Appendix. Note that the ICRG variables have been used in the finance literature to derive expected returns. See Erb, Harvey, and Viskanta (1996).

¹⁵ See Furman and Stiglitz (1998).

¹⁶ 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 (continued...))

Quantitatively, the estimated effect of opacity on international investment is not trivial. For example, the estimate using OFACTOR as the opacity measure suggests that a country like Venezuela, currently represented with an average 0.4 percent weight in the sample's portfolios, could achieve a weight boost of about 1.4 percentage points in fund portfolios if it increased its transparency to Singapore's level.¹⁷

Lastly, exchange rate regimes might potentially be correlated with opacity and fund managers may have a preference for certain types of 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. We see that each of the opacity variable 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.

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 adjusted R-squared in a univariate regression of international investment on each of these opacity measures. These results have been previously reported in Table III. Based on that table, MACROPOLICY OPACITY I and MACRODATA OPACITY (with adjusted R-squares equal to 61% and 60%, respectively) appear to be more important in relative terms than MACROPOLICY

and Daoud, 2001, and Du and Wei, 2004, for the effect of insider trading on stock price and volatility around the world).

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

OPACITY II and CORPORATE OPACITY (with adjusted R-squares equal to 54% and 56%, respectively). However, this metric has its limitations. First, due to somewhat different sample coverages, the R-squares in Table III are not exactly comparable to each other. Second, perhaps more importantly, these different dimensions of opacity are correlated as demonstrated in Table II. Hence, there is a possibility that once some dimensions of opacity are controlled for, other dimensions may no longer matter for international investment.

As an alternative way to measure the relative importance of the different dimensions of opacity, we also run a simple “horserace” between our measures, including them jointly in regressions (Table VI). We do not include OFACTOR since it is a summary variable encompassing 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 investments. However, only the two MACROPOLICY OPACITY indices are significant in both regressions with and without control variables. The effects of both MACROPOLICY OPACITY indices are, however, more pronounced when including control variables; as before, this likely reflects the mitigation of omitted variable biases. In terms of economic significance, MACROPOLICY OPACITY I has the strongest quantitative effect: according to the estimation including control variables, a decrease in MACROPOLICY OPACITY I from the top 75th percentile to the bottom 25th percentile increases investment weights by 1.8 percentage points, while a corresponding reduction in MACROPOLICY OPACITY II has a more modest effect, resulting in a 0.1 rise in portfolio weights.

It is useful to make note of 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 opposed to a proof that MACRODATA OPACITY and CORPORATE OPACITY do not matter.¹⁸

Endogeneity and omitted variable bias

Endogeneity is a potential problem for our estimations. Some of our opacity measures were constructed toward the end or after the sample period. Increases in mutual fund investment themselves may potentially trigger reforms toward more transparency.¹⁹ 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, López de Silanes, Shleifer, and Vishny (1998) (LLSV).²⁰ The measure 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.²¹ For all three indices for which we can carry out this

¹⁸ 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 percent of the variation in CORPORATE OPACITY and 43 percent 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 's for the independent variables exceed the R^2 of the original regression. While this is not the case here, we cannot dismiss the possibility of a multicollinearity problem.

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

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

²¹ Bhattacharya, Daouk, and Welker (2003) follow this approach in a related context.

estimation, we observe that the coefficients remain broadly unchanged and statistically significant (Table VII).²²

Finally, to assess the extent of any endogeneity problem we follow a similar approach as in Bhattacharya, Daouk, and Welker (2003) in estimating a vector autoregression (VAR) model with actual yearly fund-averages of country weightings w_{ijt} , the benchmark indices, MACROPOLICY OPACITY II (dispersion of forecasts), and MACRODATA OPACITY as endogenous variables, and exogenous variables as :

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

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

It turns out that both opacity indices Granger-cause funds' country weights w_{ijt} , but the reverse is only true for MACRODATA OPACITY (and only at the ten percent confidence level, Table VIII). This suggests that endogeneity is not an important problem for MACROPOLICY OPACITY II.²³

A different issue is that, despite the fact that we include a long list of control variables that are potentially correlated with opacity, we may not be exhausting the relevant variables, which 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 which 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

²² 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.

²³ Note that MACROPOLICY OPACITY I is not used in this exercise because it is not time-varying.

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 percent level (Table IX), although they diminish somewhat in size compared to the other regressions.²⁴ Lastly, we also present results for estimations with fixed effects and lagged opacity variables (same table). Both MACROPOLICY OPACITY II and CORPORATE OPACITY remain statistically significant.

We also follow a different, additional approach – conducting 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 interpreting the voluntary adoption of key transparency reforms introduced by the IMF as fundamental changes in a country's transparency. As explained in Section 2, these key reforms are: the first voluntary publication of IMF Article IV reports, the publication of ROSCs, and the adoption of the 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 lastingly 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 one following the adoption of one of the three mentioned key reforms, and zero before.

²⁴ The country variations in opacity over time seem to have a large noise component. In regressions with fixed country effects, MACROPOLICY OPACITY II was the only index to enter with a significantly negative, albeit small coefficient.

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 the discussed 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 have a relatively small weight in the MSCI index to start with.

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 have been attracting investment may find it easier to adopt more transparent policies. Alternatively, countries facing difficulties may feel 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 partly be explained by a previous increase in investment in the country (Panel B of Table X). This is not the case.

3.2. Flows during crises

A more specific question concerns the extent to which difference in opacity helps 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, beyond and above macroeconomic indicators, explain the differential loss of confidence across countries during turbulent times?

Johnson et al. (2000) have examined whether measures of corporate governance, 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, are driving the results. In addition, their work did 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 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 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 one during the crisis period. The regression equation therefore takes the form:

$$\frac{f_{ijt}}{A_{ijt-1}} = \alpha \cdot OpacityIndex_{it} + \beta \cdot OpacityIndex \cdot CrisisDummy + \gamma \cdot ControlVar + \eta_j + v_i + \varepsilon_{i,j,t} \quad (8)$$

where f_{ijt} is the flow of fund j into country i at time t , A_{ijt-1} are the assets of fund j in country i at time $t-1$, η_j is a fund fixed effect and v_i a country random effect. A negative value of α would indicate that capital flows to less transparent countries are smaller. A negative value of β 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 asset positions in each country at month end, we infer flows under some assumptions. In particular, we assume that in any given country, the funds hold that country's index (or, more precisely, a portfolio of stocks that is well approximated by the IFC investable index.²⁵ We also

²⁵ Where the IFC does not compute an investable index, we used the global index. For countries not covered by the IFC, we employed MSCI US dollar index data or national indices converted into U.S. dollars.

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

$$f_{ijt} = [Assets_{ijt} - Assets_{i,j,t-1} (1 + Index\ return_{it})] / (1 + Index\ return_{it})^{1/2} \quad (9)$$

Consistency checks which can be conducted for closed-end funds show that our approximation is reasonable.²⁶

The basic results 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 five percent level, indicating that fund managers tended to avoid opaque countries to a larger extent during the crises. 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 variables²⁷.

Note that the estimation technique used here is relatively conservative, since in addition to individual fund fixed effects, we include country random effects, which can be expected to absorb a significant fraction of the variation in country characteristics. Instead of the ICRG risk measures, we also used 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).

²⁶ The correlation between imputed and actual changes in total assets is 0.93.

²⁷ Note that in all regressions on capital flight during the crises (Tables XI through XIV), the R-squares are low. This reflects that fact that changes in the investment positions are much more challenging to explain than the positions themselves.

As a robustness check, we also employ the accounting standard quality index 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 inclusion of country fixed effects does not affect the main results. For the three variables with time variation, MACRODATA OPACITY, MACROPOLICY OPACITY II, and CORPORATE OPACITY, we include country fixed effects. All interaction terms for the crisis period remain significant; the coefficient on the interaction term for MACRODATA OPACITY remains unchanged, while the other two are somewhat lower (TABLE XIII).

A horserace 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.²⁸ A country in the top 75th percentile of MACROPOLICY OPACITY II saw average monthly withdrawals that exceeded those from countries at the 25th percentile by an average of 1.6 percent (relative to holdings in the previous month).

²⁸ Again, possible multicollinearity cautions against interpreting this result too strongly.

4. 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.

The fact that foreign institutional investors dislike country opacity does not necessarily imply that domestic investors prefer opacity. It would be useful to investigate this directly in future research.²⁹ We conjecture that the effects of opacity documented here are likely to 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.

²⁹ 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, Daouk, Jorgenson, and Kehr (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 suggest 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, and Schneider (2002) argue that foreigners are at an informational disadvantage when it comes to domestic factors but at an advantage regarding global factors.

REFERENCES

- Acemoglu, D., Johnson, S., and J. Robinson, 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91, No.5, 1369-1401.
- Admati, A.R. and P. Pfleiderer, 1997. "Does it All Add Up? Benchmarks and the Compensation of Active Portfolio Managers," *Journal of Business*, 70, 323-350.
- Albuquerque, Rui, Gregory H. Bauer, and Martin Schneider, 2002. "Characterizing Asymmetric Information in International Equity Markets," mimeo, University of Rochester.
- Ahearne, A., W. Grier, and F. Warnock, 2001. "Information Costs and Home Bias: An Analysis of U.S. Holdings of Foreign Equities," International Finance Discussion Paper 691, Board of Governors of the Federal Reserve System
- Allum, P., and M. Agca, 2001. "Economic Data Dissemination: What Influences Country Performance On Frequency and Timeliness?," IMF Working Paper 01/173 (Washington: International Monetary Fund).
- Asia Pacific Consensus Forecasts, Consensus Economics, various issues, London.
- Ausubel, L, 1990. "Insider Trading in a Rational Expectations Economy," *American Economic Review* 80, No. 5, 1022-1041.
- Berg, A., and C. Pattillo, 1999. "Are Currency Crises Predictable? A Test," *IMF Staff Papers* 46, 107-138.
- Bhattacharya, U., and H. Daouk, B., 2002, "The World Price of Insider Trading," *Journal of Finance*, Vol.57, 75-108.
- Bhattacharya, U., H. Daouk, B. Jorgenson, and C.-H. Kehr, 2000. "When an Event is Not an Event: The Curious Case of an Emerging Market," *Journal of Financial Economics* 55, 69-101.
- Bhattacharya, U., H. Daouk, and M. Welker, 2003, "The World Price of Earnings Opacity," *Accounting Review*, 78, 641-678.
- Bikhchandani, S., D. Hirshleifer, and I. Welch, 1992. "A Theory of Fads, Fashion, Custom, and Cultural Change as Information Cascades," *Journal of Political Economy* 100, 992-1020.
- Borensztein, E., and G. Gelos, 2003. "A Panic-Prone Pack? The Behavior of Emerging Market Mutual Funds," *IMF Staff Papers* 50, 43-63.
- Brennan, M. J., and H. H. Cao, 1997. "International Portfolio Investment Flows," *Journal of Finance*, 52, 1851-1880.
- Core, J., 2001. "A Review of the Empirical Disclosure Literature: Discussion," *Journal of Accounting and Economics* 31, 441-456.

- Dahlquist, M., L. Pinkowitz, R. Stulz, and R. Williamson, 2002. "Corporate Governance and the Home Bias," working paper
- Diamond, D. and R. E. Verrechia, 1991. "Disclosure, Liquidity, and the Cost of Capital," *Journal of Finance* 46, 1325-1359.
- Disyatat, P., and G. Gelos, 2001. "The Asset Allocation of Emerging Market Mutual Funds," IMF Working Paper 01/111 (Washington: International Monetary Fund)
- Doidge, C., A. Karolyi, and R. Stulz, 2002. "Why are Foreign Firms Listed in the U.S. Worth More?," mimeo
- Du, J., and S.-J. Wei, 2004, "Does Insider Trading Raise Stock Market Volatility?," IMF Working Paper 03/51
- Eastern Europe Consensus Forecasts, various issues, London
- Erb, C., C. Harvey, and T. Viskanta, 1996. "Expected Returns and Volatility in 135 Countries," *Journal of Portfolio Management* 22, 46–58.
- Frankel, J. and S. Schmukler, 2000. Country Funds and Asymmetric Information, *International Journal of Finance and Economics* 5, 177-195.
- French, K., and J. Poterba, 1991. "Investor Diversification and International Equity Markets," *American Economic Review, Papers and Proceedings*, 222-226.
- Furman, J., and J. Stiglitz, 1998. "Economic Crises: Evidence and Insights from East Asia," *Brookings Papers on Economic Activity*, No. 2, 1–135.
- Geraats, P., 2002. "Central Bank Transparency," *Economic Journal* 112, 532-565.
- Glennerster, Rachel, and Yongseok Shin, 2003. "Is Transparency Good For You and Can the IMF Help?," mimeo, International Monetary Fund
- Global Competitiveness Report, World Economic Forum, various issues.
- Healy, P., and K. Palepu, 2001. "A Review of the Empirical Disclosure Literature," *Journal of Accounting and Economics* 31, 441–45.
- International Country Risk Guide, various years
- International Monetary Fund, 2001. IMF Survey Supplement 30, September, Washington, D.C., 7–8.
- Johnson, S., P. Boone, A. Breach, and E. Friedman, 2000. "Corporate Governance in the Asian Financial Crisis," *Journal of Financial Economics* 58, 141–186.
- Kaminsky, G., S. Lizondo, and C. Reinhart, 1998. "Leading Indicators of Currency Crises," *IMF Staff Papers* 45, 1–48.

- Kaminsky, G., R. Lyons, and S. Schmukler, 2000. "Managers, Investors, and Crises: Mutual Fund Strategies in Emerging Markets," World Bank Working Paper 2399 (Washington: World Bank)
- Kaminsky, G., and S. Schmukler, 2003. "Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization," IMF Working Paper 03/34.
- Kim, W., and S. Wei, 2002b. "Offshore Investment Funds: Monsters in Emerging Markets?," *Journal of Development Economics* 68, 205-224.
- La Porta, R., F. López-de-Silanes, A. Shleifer, and R. Vishny, 1997. "Legal Determinants of External Finance," *Journal of Finance* 52, 1131-1150.
- La Porta, R., F. López-de-Silanes, A. Shleifer, and R. Vishny, 1998. "Law and Finance," *Journal of Political Economy*, 106, 1113-55.
- Latin American Consensus Forecasts, Consensus Economics, various issues, London
- Moulton, B., 1990. "An Illustration of A Pitfall in Estimating the Effects of Aggregate Variables of Micro Units," *Review of Economics and Statistics*, 334-338.
- Morck, R., B. Yeung, B., and Yu, W., 2000. "The Information Content of Stock Markets: Why Do Emerging Markets Have Synchronous Stock Price Movements?," *Journal of Financial Economics*, 58, 215-260.
- Pistor, K., Raiser, M., Gelfer, S. 2000. "Law and Finance in Transition Economies," *Economics of Transition* 8, 325-68.
- Portes, R., and H. Rey, 1999. "The Determinants of Cross-Border Equity Flows," NBER Working Paper 7336
- PricewaterhouseCoopers, 2001. The Opacity Index, www.opacityindex.com.
- Reinhart, C., and K. Rogoff, 2002. "The Modern History of Exchange Rate Arrangements: A Reinterpretation," NBER Working Paper No. 8963
- Rogers, W., 1993. "Regression Standard Errors in Clustered Samples," *Stata Technical Bulletin* 13, 19-23.
- Scharfstein, D.S. and J.C. Stein, 1990. "Herd Behavior and Investment," *American Economic Review* 80, 465-79.
- Seasholes, M. S., 2000, "Smart Foreign Traders in Emerging Markets," mimeo, UC Berkeley
- Stulz, R., 1981. "On the Effects of Barriers to International Investment," *Journal of Finance* 36, 923-34.
- Tesar, L. and I. Werner, 1995. "Home Bias and High Turnover." *Journal of International Money and Finance* 14, 467-93.

- Wei, S., 2000. "Local Corruption and Global Capital Flows," *Brookings Papers on Economic Activity* 2, 303–54.
- Wei, S., 2001. "Domestic Crony Capitalism and International Fickle Capital: Is There a Connection?," *International Finance* 4, 15–45.
- Welch, I., 1992. "Sequential Sales, Learning, and Cascades," *Journal of Finance* 47, No.2, 695-732.
- Wermers, R., 1999. "Mutual Fund Herding and the Impact on Stock Prices," *Journal of Finance* 35, No. 3, 343-368.
- Wilshire Associates, 2002. "Permissible Equity Markets Investment Analysis and Recommendations," prepared for The California Public Employees' Retirement System
- World Economic Forum, various years, "The Global Competitiveness Report," Geneva.
- World Bank, 2003. "Global Development Finance," Washington, D.C.
- Zwiebel, J., 1995. "Corporate Conservatism and Relative Compensation," *Journal of Political Economy* 103, 1-25.

Appendix: Opacity Measures and Other Variables

Corporate Opacity

The Global Competitiveness Report includes results from surveys about the level of financial disclosure. The survey data comes 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 a variable FINDIS by subtracting the original variable from eight. 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 a variable AVAIL by subtracting the original variable ranges from eight. We construct a new summary variable, which is equal to the simple average of AVAIL and FINDIS, called **CORPORATE OPACITY**.

Measures of Government Opacity

Opacity of Macroeconomic Policies

For our first index, we rely on two measures developed by Oxford Analytica. Wilshire Associates (2002) had commissioned this work as part of an investment analysis on “permissible equity markets” produced for the California Public Employees’ Retirement System. Oxford Analytica delivered detailed reports for 27 countries, on which basis it assigned a score from 1 (least transparent) to 5 (most transparent) to fiscal and monetary policy. The reports were to a significant extent based on the IMF’s recent Reports on Standards and Codes (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>, 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 of good practices on fiscal transparency stresses the clarity of roles and responsibilities of the government, public availability of information, open budget preparation, execution, and reporting, and integrity assurances as general guidelines. We use the sum of Oxford Analytica’s scores, which ranges from three to eight, and subtract it from ten and label the variable **MACROPOLICY OPACITY I**.

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.³¹ The typical number of surveyed participants is about 20. We call this index **MACROPOLICY OPACITY II**.

³¹ See Eastern Europe Consensus Forecasts, Latin American Consensus Forecasts, Asia Pacific Consensus Forecasts (various issues).

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 them from ten. Then, we construct a simple average of the two variables and call it **MACRODATA OPACITY**. For 1998 and 1999 we use the 1997 values.

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

	0	2	Points Scored			10	SDDS prescription
			5	8	9		
Scoring System for Data Frequency (Periodicity of Compilation) 1/							
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) 2/							
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	3/
External sector indicators							
International reserves	n/a	5+	3-4	2		1	W
Exchange rates	n/a	5+	3-4	2		1	3/
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.)

1/ A=Annual; Q=Quarterly; 2Q=Semi-Annual; M=Monthly; W=Weekly; 2W=Bi-Weekly.

2/ Defined as difference between final month in reporting period to month of data availability.

3/ Widely available from private sources. To be part of other (preferably high-frequency) official dissemination products.

Table reproduced from Allum and Agça (2001).

A Composite Index

For 35 countries, the accountancy and consulting company PricewaterhouseCoopers 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. PricewaterhouseCoopers aimed at interviewing at least 20 CFOs, five bankers, five equity analysts, and five PricewaterhouseCoopers employees in each country.

Some selected examples of questions asked were the following:

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

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, PricewaterhouseCoopers produced an aggregate score, called the **OFACTOR**.

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, 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 pre-set 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.

Table AII

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 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		

Table AIII
Opacity Measures (Averages)

COUNTRY	O-FACTOR (composite)	MACRO DATA OPACITY	MACRO POLICY OPACITY I	MACRO POLICY OPACITY II	CORPORATE OPACITY	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	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 the Appendix.

Table AIV
Date of Adoption of IMF Transparency Reforms (until Dec 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 I
Total Holdings and Number of Funds by Region
(holdings in billion U.S. dollars, December 2000)

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.

	Total Number	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

Table II
Correlation between 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 the Appendix.

		OFACTOR	MACROPOLICY OPACITY I	MACROPOLICY OPACITY II	MACRODATA OPACITY	CORPORATE OPACITY
Overall	O-FACTOR	1				
Government Opacity	MACROPOLICY OPACITY I	0.44	1			
	MACROPOLICY OPACITY II	0.60	0.36	1		
	MACRODATA OPACITY	0.06	0.63	-0.17	1	
Corporate Opacity	CORPORATE OPACITY	0.69	0.54	0.43	0.02	1
<i>Correlation with income levels</i>	<i>GDP per capita</i>	<i>-0.54</i>	<i>-0.40</i>	<i>-0.20</i>	<i>-0.03</i>	<i>-0.56</i>

Table III

The Effect of Opacity on Investment by Global Funds

The dependent variable in all OLS regression is the country portfolio weight of fund j in country i at time t (w_{ijt}).

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot OpacityIndex_{i,t} + \varepsilon_{it}$$

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 five percent 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; 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_{ijt} (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 the Appendix.

Panel A: Using actual MSCI benchmark indices as control variable.

	O-FACTOR (Composite)	MACROPOLICY OPACITY I	MACROPOLICY OPACITY II	MACRODATA OPACITY	CORPORATE OPACITY
MSCI Index	0.766 (32.74)	0.727 (34.61)	0.720 (28.46)	0.756 (39.69)	0.710 (33.33)
Opacity index	-0.030 (-4.13)	-0.134 (-6.45)	-0.022 (-5.82)	-0.117 (-4.31)	-0.225 (-3.61)
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 orthogonalized component of MSCI benchmark index instead of actual MSCI index:

	O-FACTOR (Composite)	MACROPOLICY OPACITY I	MACROPOLICY OPACITY II	MACRODATA OPACITY	CORPORATE OPACITY
Orthogonalized component of MSCI Index	0.766 (32.74)	0.727 (34.61)	0.720 (28.46)	0.756 (39.69)	0.710 (33.33)
Opacity index	-0.094 (-13.83)	-0.78 (-28.66)	-0.104 (-24.71)	-1.007 (-29.76)	-1.294 (-20.22)
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

Table IV

Opacity and Investment by Global Funds: Adding Control Variables

The dependent variable in all OLS regression is the country portfolio weight of fund j in country i at time t (w_{ijt}).

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot OpacityIndex_{i,t} + \delta \cdot Control\ Variables + \varepsilon_{it}$$

T-statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Coefficients that are significant at the five percent 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 the Appendix.

	O- FACTOR	MACROPOLICY OPACITY I	MACROPOLICY OPACITY II	MACRODATA OPACITY	CORPORATE OPACITY
MSCI Index	0.697 (35.46)	0.694 (32.32)	0.700 (27.54)	0.667 (31.94)	0.671 (-32.93)
Opacity Index	-0.103 (-11.72)	-0.390 (-10.06)	-0.281 (-11.52)	-0.250 (-3.69)	-0.032 (-0.20)
GDP per capita (average)	0.0146 (1.22)	-0.011 (-6.66)	0.12 (9.46)	0.092 (8.37)	0.073 (4.46)
Turnover	-3.381 (-5.44)	0.618 (0.99)	-7.246 (-6.80)	0.787 (1.54)	-4.235 (-4.20)
Share of firms closely held	-0.023 (-8.75)	-0.020 (-4.94)	-0.030 (-7.54)	-0.058 (-19.76)	-0.034 (-12.72)
Minority Shareholders' Rights	-0.077 (-2.43)	-0.373 (-10.09)	-0.003 (-0.06)	-0.084 (-2.81)	-0.022 (-0.45)
ICRG Economic Risk	-0.091 (-9.42)	-0.043 (-4.38)	-0.158 (-11.51)	-0.082 (-9.01)	-0.111 (-9.93)
ICRG Financial Risk	0.001 (0.19)	-0.042 (-4.45)	-0.015 (-1.56)	-0.028 (-3.10)	0.003 (0.35)
ICRG Political Risk	-0.020 (-5.38)	-0.022 (-4.35)	-0.045 (-8.73)	-0.023 (-5.58)	-0.015 (-3.60)
Historical returns	11.701 (4.92)	13.593 (5.28)	31.410 (9.89)	10.868 (4.06)	10.202 (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

Table V

Opacity and Investment by Global Funds: Adding Exchange Rate Regimes

The dependent variable in all OLS regression is the country portfolio weight of fund j in country i at time t (w_{ijt}).

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot OpacityIndex_{i,t} + \delta \cdot Control\ Variables + \varepsilon_{it}$$

T-statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Coefficients that are significant at the five percent 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 the Appendix.

	O-FACTOR	MACROPOLICY OPACITY I	MACROPOLICY OPACITY II	MACRODATA OPACITY	CORPORATE OPACITY
MSCI Index	0.739 (36.76)	0.728 (32.94)	0.702 (27.50)	0.686 (33.26)	0.706 (34.84)
Opacity index	-0.041 (-4.89)	-0.337 (-8.69)	-0.237 (-10.27)	-0.180 (-2.64)	0.204 (1.67)
GDP per capita (average)	0.052 (4.92)	-0.097 (-5.90)	0.116 (8.10)	0.080 (7.52)	0.084 (5.84)
Turnover	-3.489 (-6.55)	0.247 (0.44)	-5.178 (-5.21)	0.510 (1.24)	-4.689 (-4.84)
Minority Shareholders' Rights	-0.020 (-0.68)	-0.346 (-9.24)	-0.104 (-2.72)	0.025 (1.02)	0.095 (1.86)
Share of firms closely held	-0.022 (-8.02)	-0.014 (-3.36)	-0.021 (-5.07)	-0.052 (-18.65)	-0.028 (-9.77)
Exchange rate Dummy: peg	0.752 (2.31)	0.928 (3.19)	1.514 (4.60)	0.615 (1.88)	0.874 (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	0.702 (2.20)	0.933 (2.96)	1.317 (3.95)	1.157 (3.29)	1.057 (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	-0.131 (-12.06)	-0.088 (-9.67)	-0.168 (-12.91)	-0.111 (-12.37)	-0.148 (-12.95)
ICRG Financial Risk	0.025 (3.67)	-0.035 (-4.18)	-0.007 (-0.83)	-0.007 (-0.95)	0.025 (3.59)
ICRG Political Risk	-0.029 (-8.05)	-0.029 (-5.75)	-0.052 (-9.21)	-0.039 (-9.32)	-0.027 (-6.41)
Historical returns	9.779 (4.33)	15.884 (6.17)	31.806 (10.49)	16.682 (6.27)	12.022 (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

Table VI

Investment Levels: Horseshoe Between Transparency Measures

OLS regressions with fund fixed effects. Dependent variable: Country portfolio weight of fund i in country j at time t (w_{ijt}). T-statistics 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 five percent 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 the Appendix.

	Regression incl. only benchmark weights as control variable (as in Table III)	Regression incl. control variables (as in Table IV)
MACROPOLICY OPACITY I	-0.212 (-3.97)	-0.676 (-10.85)
MACROPOLICY OPACITY II	-0.010 (-2.11)	-0.125 (-5.42)
MACRODATA OPACITY	-0.177 (-1.57)	-0.119 (-0.80)
CORPORATE OPACITY	0.122 (0.82)	-0.137 (-0.81)
Number of obs.	41,444	34,532
Adj. R ²	0.63	0.75

Table VII

Investment Levels: Regressions with Lagged Opacity Indices

The dependent variable in all OLS regression is the country portfolio weight of fund j in country i at time t (w_{ijt}).

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

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 five percent 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. MACRODATA OPACITY is an index of the timeliness and frequency of macroeconomic data releases. Details of the construction of the variables are described in the Appendix. MACROPOLICY OPACITY I is not included in this table because it is not time-varying.

	MACRODATA OPACITY	MACROPOLICY OPACITY II	CORPORATE OPACITY
MSCI Index	0.725 (38.44)	0.722 (27.07)	0.718 (37.96)
Lagged Opacity Index	-0.147 (-2.11)	-0.074 (-4.20)	-1.002 (-5.47)
Turnover	0.876 (1.71)	-7.944 (-7.30)	-4.874 (-4.20)
Share of Firms Closely Held	0.054 (-20.11)	-0.033 (-8.19)	-0.055 (-13.47)
Minority Shareholders ' Rights	-0.089 (-2.99)	0.047 (1.18)	-0.130 (-1.85)
GDP per capita	0.075 (7.19)	0.112 (9.15)	0.058 (3.36)
ICRG Economic Risk	-0.070 (-8.32)	-0.095 (-7.53)	-0.178 (-11.63)
ICRG Financial Risk	-0.011 (-1.37)	-0.028 (-2.85)	-0.024 (-3.01)
ICRG Political Risk	-0.020 (-4.89)	-0.048 (-8.11)	-0.011 (-2.09)
Historical returns	7.915 (2.63)	29.801 (9.01)	-8.053 (-2.04)
Number of obs.	55,596	39,004	21,880
Adj. R ²	0.60	0.53	0.60

Table VIII
Vector autoregression

The dependent variable in the OLS regressions are the average country portfolio weight of fund j in country i in year t (w_{ijt}) and the opacity indices for country i at year t .

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

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

T-statistics are given in parentheses (based on robust standard errors, allowing for clustering by fund). Coefficients that are significant at the five percent 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 the Appendix. 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	0.526 (15.57)	0.005 (1.73)	0.548 (15.73)	-0.010 (-1.03)
Lagged Macrodata Opacity	-0.344 (-5.59)	0.734 (44.23)	-	-
Lagged Macropolicy Opacity II	-	-	-0.139 (-3.26)	0.083 (6.33)
Lagged MSCI index	0.217 (7.53)	0.009 (3.50)	0.226 (7.31)	-0.073 (-13.36)
ICRG Economic Risk	-0.046 (-3.58)	0.000 (0.03)	0.022 (0.89)	-0.104 (-33.41)
ICRG Financial Risk	0.035 (3.71)	-0.006 (-7.15)	-0.010 (-0.69)	-0.063 (-33.34)
ICRG Political Risk	-0.027 (-4.25)	0.013 (25.91)	-0.064 (-4.31)	-0.028 (-3.64)
Historical returns	29.238 (7.25)	-1.096 (-6.90)	52.853 (10.47)	-9.153 (-12.10)
GDP per capita	0.004 (0.37)	0.009 (19.16)	0.004 (10.47)	0.060 (12.26)
Turnover	3.183 (6.78)	0.316 (10.08)	7.783 (6.51)	2.222 (15.85)
Share of firms closely held	-0.046 (-14.17)	0.005 (14.51)	-0.025 (-6.42)	0.0002 (2.01)
Minority Shareholders' Rights	-0.011 (-2.65)	0.008 (16.97)	-0.012 (-2.23)	0.004 (3.41)
Number of obs.	2,987	2,987	1,929	1,929
Adj. R ²	0.61	0.59	0.65	0.46

Table IX

Investment Levels: Regressions with Fixed Region Effects

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

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

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 five percent 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 the Appendix. α_{region} are regional dummies for Europe, Asia, Latin America, and Africa & Middle East, respectively. MACROPOLICY OPACITY I is not used in this exercise because it is not time-varying.

	MACRODATA OPACITY	MACROPOLICY OPACITY II	CORPORATE OPACITY	MACRODATA OPACITY	MACROPOLICY OPACITY II	CORPORATE OPACITY
MSCI Index	0.691 (32.54)	0.654 (23.06)	0.659 (28.67)	0.750 (37.63)	0.656 (23.07)	0.733 (29.87)
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	0.022 (3.66)	0.001 (0.26)	0.012 (1.94)	0.034 (6.11)	-0.012 (-1.37)	0.012 (1.23)
ICRG Political Risk	0.020 (4.79)	0.001 (0.26)	0.008 (2.31)	0.018 (4.10)	-0.009 (-1.26)	0.021 (4.29)
Historical returns	21.475 (9.65)	32.013 (7.95)	20.153 (9.72)	21.238 (9.95)	34.067 (7.74)	29.971 (9.79)
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

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_{ijt}).

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

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 one 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 five percent level are marked bold. Details of the construction of the variables are described in the Appendix. 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 zero to one.

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

Panel A. Dependent Variable: Country Weights

	Without control variables	With control variables
MSCI Index	0.503 (16.68)	0.462 (16.00)
Transparency Reform Dummy	0.165 (2.62)	0.197 (2.87)
ICRG Economic Risk	-	0.015 (2.71)
ICRG Financial Risk	-	0.023 (3.81)
ICRG Political Risk	-	-0.003 (-0.67)
Historical returns	-	17.175 (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: Transparency Reform Dummy

	Without control variables	With control variables
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

Table XI

Asian and Russian Crises: Fund Flows and Opacity

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

$$\frac{f_{ijt}}{A_{ijt-1}} = \alpha \cdot OpacityIndex_{it} + \beta \cdot OpacityIndex \cdot CrisisDummy + \eta_j + \nu_i + \varepsilon_{i,j,t}$$

Z statistics are given in parentheses. Coefficients that are significantly different from zero at the five percent 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, López-de-Silanes, Shleifer, and Vishny (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 the Appendix.

	MACROPOLICY OPACITY I	MACROPOLICY OPACITY II	MACRODATA OPACITY	CORPORATE OPACITY	Corp. Opacity: LLSV Accounting Standards
Opacity variable	-0.001 (-2.13)	-0.004 (-3.11)	-0.001 (-1.02)	-0.004 (-4.12)	-0.003 (-7.53)
Opacity variable x Crisis Dummy	-0.002 (-4.44)	-0.005 (-5.65)	-0.008 (-5.42)	-0.002 (-3.00)	-0.002 (-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
No. of countries	26	19	33	30	22
No. of obs	62,694	45,772	68,909	69,032	56,429

Table XII

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

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

$$\frac{f_{ijt}}{A_{ijt-1}} = \alpha \cdot OpacityIndex_{it} + \beta \cdot OpacityIndex \cdot CrisisDummy + \gamma \cdot ControlVar + \eta_j + \nu_i + \varepsilon_{i,j,t}$$

Z statistics are given in parentheses. Coefficients that are significantly different from zero at the five percent 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, López-de-Silanes, Shleifer, and Vishny (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 the Appendix.

	MACROPOLICY OPACITY I	MACROPOLICY OPACITY II	MACRODATA OPACITY	CORPORATE OPACITY	Corp. Opacity: LLSV Accounting Standards
Opacity variable	-0.001 (-2.40)	-0.004 (-2.65)	-0.005 (-5.29)	-0.008 (-6.67)	-0.003 (-6.07)
Opacity variable x Crisis dummy	-0.002 (-4.29)	-0.006 (-5.47)	-0.007 (-4.85)	-0.001 (-2.88)	-0.002 (-6.26)
Turnover	0.072 (6.77)	0.102 (9.34)	0.103 (8.49)	0.116 (11.15)	0.748 (7.76)
GDP per capita	0.0001 (3.83)	0.000 (0.57)	0.0004 (2.99)	-0.004 (-2.94)	-0.004 (-2.93)
ICRG Economic Risk (lagged one month)	-0.0004 (-2.16)	0.004 (1.83)	-0.0002 (-1.09)	-0.0004 (-2.18)	0.0002 (1.10)
ICRG Financial Risk (lagged one month)	0.001 (3.89)	-0.0003 (-1.96)	0.001 (4.19)	0.0002 (1.80)	0.0005 (3.10)
ICRG Political Risk (lagged one month)	-0.0001 (-1.25)	-0.0004 (-4.86)	-0.002 (-3.47)	-0.0002 (-3.64)	-0.0002 (-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
No. of countries	25	19	33	30	22
No. of obs	59,287	43,823	65,833	65,905	54,080

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

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

$$\frac{f_{ijt}}{A_{ijt-1}} = \alpha \cdot OpacityIndex_{it} + \beta \cdot OpacityIndex \cdot CrisisDummy + \gamma \cdot ControlVar + \eta_j + \nu_i + \varepsilon_{i,j,t}$$

Z statistics are given in parentheses. Coefficients that are significantly different from zero at the five percent 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, López-de-Silanes, Shleifer, and Vishny (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 the Appendix.

	MACRODATA OPACITY	CORPORATE OPACITY	MACROPOLICY OPACITY II
Opacity Variable	-0.001 (0.49)	-0.024 (-5.87)	-0.001 (-5.02)
Opacity Variable x crisis dummy	-0.007 (-4.50)	-0.001 (-2.88)	-0.005 (-4.49)
ICRG Economic Risk (lagged one month)	0.000 (1.62)	0.000 (1.32)	0.000 (1.37)
ICRG Financial Risk (lagged one month)	-0.000 (-2.93)	-0.000 (1.71)	-0.000 (1.41)
ICRG Political Risk (lagged one month)	0.000 (0.40)	0.000 (0.63)	0.000 (1.19)
R-squared	0.01	0.01	0.02
Country fixed effects	Yes	Yes	Yes
Fund fixed effects	Yes	Yes	Yes
No. of countries	33	30	19
No. of observations	65,817	65,888	43,799

Table XIV

Asian and Russian Crises: Horserace Among Opacity Indices

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

$$\frac{f_{ijt}}{A_{ijt-1}} = \alpha \cdot OpacityInd\ ex_{it} + \beta \cdot ControlVar + \eta_j + \nu_i + \varepsilon_{i,j,t}$$

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, López-de-Silanes, Shleifer, and Vishny (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 the Appendix.

MACRODATA OPACITY	0.007 (0.46)
MACROPOLICY OPACITY I	-0.003 (-0.05)
MACROPOLICY OPACITY II	-0.016 (-5.22)
CORPORATE OPACITY	0.008 (0.72)
Turnover	0.014 (0.18)
GDP per capita	0.002 (1.12)
ICRG Economic Risk (lagged one month)	-0.0008 (-1.02)
ICRG Financial Risk (lagged one month)	0.0008 (1.39)
ICRG Political Risk (lagged one month)	-0.0001 (-0.19)
R ²	0.05
Country random effects	Yes
Fund fixed effects	Yes
No. of countries	22
No. of obs	4,294