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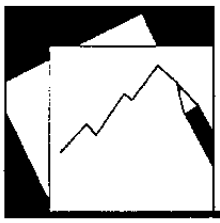

IMF Working Paper

Transparency and International Investor Behavior

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Transparency and International Investor Behavior

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Abstract

Does country "transparency" affect international portfolio investment? We examine this and related questions using a unique micro dataset on international portfolio holdings. We employ various indices of government and corporate transparency, focusing on the availability and quality of information. We find that emerging market equity funds hold fewer assets in less transparent countries. Herding among funds is somewhat less prevalent in more transparent countries. During the Asian and Russian crises, emerging market funds withdrew more strongly from less transparent countries after controlling for other risk factors. However, funds tend to react *less* strongly to news from more opaque markets.

JEL Classification Numbers: F30, D80, G10, G30

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I. Introduction

Lack of transparency has often been blamed for the recent financial crises in emerging markets. For example, the IMF (2001) notes that a "lack of transparency was a feature of the buildup to the Mexican crisis of 1994–95 and of the emerging market crises of 1997–98," stating that "inadequate economic data, hidden weaknesses in financial systems, and a lack of clarity about government policies and policy formulation contributed to a loss of confidence that ultimately threatened to undermine global stability."

As a consequence of this consensus, the international financial institutions have actively promoted more transparency among their member countries as well as made strides to become more transparent in their own operations. In 1998, the Group of 22 systemically significant economies (G-22) issued a Report on Transparency and Accountability (G-22, 1998) which includes a number of recommendations for international financial institutions and national authorities, including regular and timely provision of data, information about economic policies, and adherence to high corporate disclosure standards.

The theoretical link between transparency and volatility is, however, ambiguous. The strive for more transparency presupposes implicitly or explicitly that destabilizing behavior by individual investors, such as herding behavior, will be avoided or attenuated by improved provision of information. While there are a number of theoretical arguments why this might be the case, much depends on specific assumptions about the nature of informational asymmetries. For example, one rationalization of herding behavior relies on incomplete information, with investors receiving noisy signals. Under certain circumstances, it may be rational for the individual investor to ignore his own signal and to follow the behavior of others. If incomplete information about countries is the main factor behind herding, then this would indeed constitute a strong argument for public institutions to increase the provision of information. However, herding may instead be the result of asymmetries in information about fund managers' abilities and not be attenuated by increased country transparency. More generally, the theoretical link between availability of information and market volatility is far from clear, as pointed out, among others, by Furman and Stiglitz (1998).

It is therefore surprising that hardly any empirical attempt has been made so far to link the behavior of international investors to measures of country transparency, and this study makes a contribution towards filling this gap.[2] We use a unique micro dataset on the monthly country

[2] A few other papers use aggregate data, but tend to focus on corruption and corporate governance rather than on transparency as defined here. Wei (2000) links capital flows to corruption. Ghosh and Ghosh (2002) study the link between crisis incidence and structural factors, including some governance aspects. Furman and Stiglitz (1998) discuss the role of transparency during the Asian crisis. Johnson and others. (2000) examine how corporate governance variables affected country performance during the Asian crisis. Portes and Rey (1999) examine the importance of information flows in determining cross-border equity transactions, but do not focus on country transparency. Ahearne, Griever, and Warnock (2000)

allocation of individual emerging market funds for the period 1996–2000 and a compilation of different measures of various dimensions of country opacity to examine how fund investment behavior is affected by country opacity.[3] Dedicated emerging market equity funds are institutions specialized in overcoming the informational asymmetry problems faced by international investors and they devote considerable resources to understanding the functioning of emerging markets. Therefore, we believe that any evidence for effects of opacity on the behavior of this class of investors is likely to represent a lower bound for the effects on the behavior of international investors more generally.

Country transparency or lack thereof—opacity—has many dimensions. One aspect of transparency concerns the availability and quality of macroeconomic data. For example, the Institute of International Finance (1999) writes that "the publication and dissemination of macroeconomic data can add considerably to sound assessment of risks by investors" and "the avoidance of 'surprises' can significantly add to the stability of financial markets." A related dimension is the degree of transparency of government policies. Similarly, corporate transparency is the degree to which reliable information about companies is available to investors. In contrast to the few other studies that discuss the effects of transparency on international investor behavior, we do *not* focus on corruption, the rule of law, or specific corporate governance aspects, such as the degree of minority shareholder protection. Rather, we try to capture as accurately as possible the notion of information quality and availability. In particular, while some papers have been beginning to assess the effects of corporate opacity, to our knowledge, this paper is the first to systematically examine the effect of macroeconomic opacity on portfolio allocations.

We proceed in six steps. First, we discuss how transparency may affect investor behavior and the likelihood of crises, building on findings in the corporate finance literature on firm level disclosure. Second, we present the measures of transparency to be used. Third, we relate the country asset allocation of individual dedicated emerging market equity funds to measures of country transparency. The main question there is whether, relative to a benchmark, funds tend to be underweight in less transparent countries. Fourth, using the same database, we examine the relationship between mean herding measures and transparency indices, asking whether herding is more prevalent in less transparent countries. Fifth, we examine whether funds react differently to country news depending on the degree of the country's transparency. Sixth, we ask whether country transparency measures help explain the size of fund outflows across countries during the Asian and Russian crises.

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investigate how information costs affect the U.S. holdings of foreign equities. In their estimations, they also include two governance variables. Caprio (1998) and Mehrez and Kaufmann (2000) assess the relationship between banking crisis incidence and transparency and regulatory quality. Demirgürç-Kunt and Detragiache (1998) also include governance variables in their empirical work on the determinants of banking crises.

[3] The data were first used and described in Borensztein and Gelos (forthcoming).

For the most part, we do find significant effects of transparency on investment behavior, even after controlling for other factors. Controlling for benchmark index weights and many other variables, emerging market equity funds hold fewer assets in less transparent countries. Herding among funds is somewhat less prevalent in more transparent countries. However, funds tend to react *less* strongly to news about more opaque markets, probably because for nontransparent countries, news conveys less useful information. Confirming largely anecdotal evidence, we find that emerging market funds withdrew less strongly from more transparent countries during the Russian crisis. To a lesser extent, this also was true during the Asian crisis.

II. Transparency and Investor Behavior—Theoretical Considerations

The hope behind the strive for more transparency is that higher transparency will allow countries to attract a broad investor base, reduce the cost of capital, dampen destabilizing investor behavior, and ultimately lessen the volatility of international capital flows and contagion effects. We elaborate briefly below.

A. Attracting Investors/Lowering the Cost of Capital

Theory says that transparency may reduce the cost of capital. In the corporate finance literature, Diamond and Verrechia (1991), among others, have argued that reducing information asymmetry can reduce a firm's cost of capital by attracting increased demand from large investors.[4] Translated to the country level, this would mean that countries could reduce their borrowing costs by becoming more transparent. High disclosure and accounting standards may also help avoid insider dealing and stock manipulation and make a market more attractive for investors[5]. Lower financing costs, in turn, could reduce the probability of crises. Regarding stock-market evidence on the cost of capital, Lee and Ng (2001) do indeed find that firms from more corrupt countries trade at significantly lower market multiples.[6] For emerging markets, statements by institutional investors often suggest that measures of country transparency are taken into consideration when deciding about country allocation.[7]

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[4] See Core (2001) for a review of the literature on corporate disclosure.

[5] For example, in opaque markets, company valuation may to a significant extent reflect the value of political connections. See Fisman (2001).

[6] There are various related studies that we do not discuss here. See for example Klapper and Love (2002).

[7] See, for example, a report prepared by Wilshire Associates (2002) for the California Public Employees Retirement (CalPERS) Board. JPMorgan's quarterly country risk assessment identifies nonsubscription to the IMF's Special Data Dissemination Standard (SDDS) as one of seven key domestic economic factors increasing country risk. Whether increased holdings by *institutional* investors ultimately results in lower volatility, however, is unclear. There is empirical evidence that firms with higher levels of disclosure (i.e., more transparent firms) tend

B. Reaction to News

Timely and comprehensive data dissemination by national authorities are intended to avoid situations in which any piece of bad news—whether accurate or not—is potentially seen by market participants as the tip of a large hidden iceberg, with ensuing panicky reactions. Furman and Stiglitz (1998) argue that the mean of investors' expectations is unlikely to be affected by a lack of transparency. However, the variance of expectations across investors is likely to be higher and their prior beliefs flatter. Any information received might therefore have a larger effect on the investors' beliefs.

On the other hand, news about more transparent countries will on average convey more useful information than news about opaque countries, so that markets may react more *strongly* to news in transparent markets. Put differently, if one thinks of signals (news) as composed by a "fundamental" plus an error term (whose variance is a function of transparency), the reaction to news should be lower the higher the variance of the error term. Core (2001) and Shu (2000) make this point in the context of corporate disclosure.[8]

C. Herding and Noise Trading

Transparency about policies and fundamentals may reduce the risk of contagion and herding by helping investors to differentiate among countries. Herding is typically defined as investors taking decisions which they would not take if they did not observe other market participants taking them. The two main rationalizations of herding in the literature include informational cascades and compensation-based incentives. In the case of informational cascades, there is imperfect information and individual investors receive noisy signals about fundamentals. Under certain circumstances, the investor may be induced to ignore his own signal and mimic the behavior of others.[9] At least in this class of herding models, there is a strong argument for public institutions to increase the provision of information. This asks for an empirical examination of whether herding is more prevalent in more opaque markets.

Similarly, opacity may reduce the fraction of investors who trade on the base of fundamentals and increase the fraction of noise traders. Morck, Yeung, and Yu (2000) argue that political opacity may discourage risk arbitrage, creating "space" for noise trading as described in De Long and others (1990). In that paper, the price of risk increases with the variability of noise

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to attract certain types of institutional investors which are characterized by aggressive, short-term trading strategies (such as momentum trading) (Bushee and Noe, 2000).

[8] Furman and Stiglitz (1998) also make a different observation regarding the relationship between transparency and volatility, where transparency is interpreted as the *frequency* of news releases: prices may become more volatile if information is released more often.

[9] See Devenow and Welch (1996) and Bikhehandani and Sharma (2000).

traders' beliefs. In response, risk averse "sophisticated" traders reduce the extent to which they bet against noise traders. Therefore, stock markets with fewer informed traders may suffer from large price swings due to noise traders.

D. Other Effects

Lastly, there are other ways in which transparency may affect the likelihood of financial crises. Prati and Sbracia (2002) modify the Morris and Shin (1998) model and show that the effect of the precision of public information (a form of transparency) depends on the expected fundamental: when the fundamental is sufficiently good (bad), an increase in information precision decreases (increases) the probability of a speculative attack. In a model by Chang and Majnoni (2002), more transparency does not eliminate contagion. Rather, more transparency intensifies contagion from country A to country B, when A suffers from a crisis driven by fundamentals. On the other hand, transparency makes crises driven by beliefs less contagious. In Kodres and Pritsker (2002), greater information asymmetry (the variance of beliefs about a country's fundamentals among informed investors) exacerbates contagion since it increases the likelihood that shocks transmitted to a market are interpreted as the news of informed investors.[10]

III. Data

A. Data on Emerging Market Funds

We use data from a comprehensive database purchased from eMergingPortfolio.com (formerly Emerging Market Funds Research, Inc.). The database covers, on a monthly basis, the country asset allocation of hundreds of equity funds with a focus on emerging markets. The period covered is January 1996–December 2000. At the beginning of the sample, the database contains 382 funds with assets totaling US$117 billion; at the end of 2000, the number of funds covered is 639, managing US$120 billion. Approximately one quarter of the funds are closed-end funds. The funds are domiciled mostly in advanced economies and offshore banking centers. We exclude single-country funds.

In February 1999, the sample consisted of 9 international funds (not focusing on emerging markets), 53 global emerging market funds, 125 Asian regional funds (18 of which included equity holdings in Japan), 52 regional Latin American funds, and 39 funds focusing on other geographic areas. Approximately one quarter of the funds are closed-end funds. The assets of these funds represent a modest, but not insignificant fraction of the total market capitalization. For example, in the case of Argentina, the funds held approximately 6.5 percent of the total stock market capitalization in August of 1998, while the share was around 4.5 percent in Hungary and Korea.

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[10] Here, cannot review all models in which the availability of information affects capital flows. See for example Bacchetta and van Wincoop (1998).

The data set provides asset positions in each country, while we are mainly interested in the *flows* to individual countries. We calculate implied flows from the asset position data under some assumptions concerning stock valuation changes. In particular, we assume that funds hold a portfolio of stocks that is well approximated by the IFC US$ total return investable index.[11] We assume that flows occur halfway through the period. For each country c and fund i in month t we therefore calculate the flow in the following way:

$$\text{Flow}_{cit} = [\text{Assets}_{i,c,t} - \text{Assets}_{i,c,t-1} - \text{Index return}_{ct} \cdot \text{Assets}_{i,c,t-1}] / (1 + \text{Index return}_{ct})^{1/2} \quad (1)$$

This obviously represents an approximation. However, consistency checks for closed-end funds show that our approximation is quite good.[12]

B. Transparency Measures

In this paper, we use the term transparency as denoting 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. [13]

Corporate Transparency

The yearly Global Competitiveness Report produced by the World Economic Forum used to include results from surveys about the level of financial disclosure and availability of

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[11] 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.

[12] Since the sum of the returns on all assets must equal the growth in total size for closed-end funds, we can compare actual with derived gains for this class of funds. The divergence between the two measures is small. See Borensztein and Gelos (forthcoming).

[13] We do not use traditional measures of corruption. While related, the concept of corruption captures more the risk of expropriation and lack of contract enforcement than the notion of transparency we are interested here. However, we experimented with such measures, obtaining similar results as with the measures of overall opacity and corporate opacity.

information about companies. Based on these results, we construct a summary variable called **CORPORATE OPACITY** (further details are given in Appendix I).

Government Transparency

To measure the transparency of macroeconomic policies, we rely on two measures developed by Oxford Analytica for Wilshire Associates. Oxford Analytica produced detailed 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) produced by the IMF. We use the sum of these scores, subtract it from ten, and label this variable **MACROPOLICY OPACITY** (See Appendix I).

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 (Allum and Agça, 2001). We subtract these values 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.

A Composite Index

The accountancy and consulting company PricewaterhouseCoopers conducted a survey of banks, firms, equity analysts, and in-country staff 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. We call this variable **OFACTOR**.

Correlation Between Opacity Measures

These different measures of opacity indeed appear to capture different aspects of country opacity: the correlation among them is positive but far from perfect (Table 1). The overall measures OFACTOR is strongly correlated with CORPORATE OPACITY (correlation coefficient =0.69), and the correlations between MACROPOLICY OPACITY and MACRODATA OPACITY is also quite high (0.63). The relationship between CORPORATE OPACITY and OFACTOR on the one hand and the macroeconomic opacity measures on the other hand is low. In order to highlight that the opacity measures measure something different than just economic development, the table also shows the correlation of the opacity indices with GDP per capita. The correlation of OFACTOR and CORPORATE OPACITY with GDP per capita is statistically significant but far from perfect.

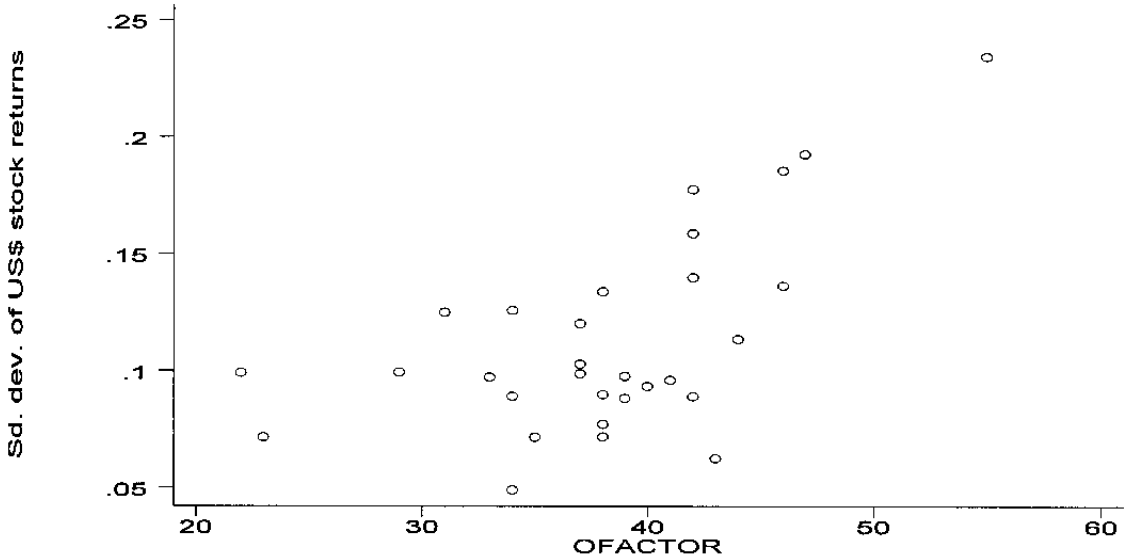
Table 1. Correlation Between Opacity Measures

		OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY
Overall	OFACTOR	1			
Government Opacity	MACROPOLICY OPACITY	0.44	1		
	MACRODATA OPACITY	0.06	0.63	1	
Corporate Opacity	CORPORATE OPACITY	0.69	0.54	0.02	1
Correlation with income levels	*GDP per capita*	*-0.54*	*-0.40*	*-0.03*	*-0.56*

IV. VOLATILITY AND OPACITY

Do less transparent countries have more volatile stock markets? A quick look at the data certainly suggests that this is the case. Figure 1 plots the standard deviation of monthly IFC investable US$ returns by country over five years (1996–2000) against **OFACTOR**, showing a clear positive correlation.

Figure 1. Standard Deviation of U.S. Dollar Stock Returns and OFACTOR



More formally, a regression of the standard deviation of returns of 30 countries on OFACTOR yields a coefficient of 0.38, with a t-statistic of 4.02, and an R^2 of 0.37. The coefficient on OFACTOR does not decrease in size or significance level if other variables, such as GDP per capita or market size are included in the regression. In this paper, however, we do

not intend to examine in detail how stock return volatility relates to opacity, since we intend to focus on a microeconomic examination of the effects on fund managers' behavior. However, the observed relationship between opacity and volatility may at least partly reflect the behavior of international investors, an important class of which we examine below.

V. Transparency and Country Asset Allocation

In this section, we assess whether funds tend to allocate less money to less transparent countries, controlling for other factors. We use the popular MSCI Emerging Markets Free (EMF) Index produced by Morgan Stanley as our main control variable. The index is essentially market-capitalization based and therefore constitutes a natural benchmark—for example, the CAPM would predict that investors hold assets in proportion to their market capitalization. Of course, the total market capitalization must be held in the aggregate and as a result not all investors can be "underweight" in less transparent countries. Our interest specifically concerns how the behavior of foreign investors as opposed to that of domestic investors is affected by opacity.

Disyatat and Gelos (2001) show that the country allocation of dedicated emerging market funds can to a large extent be explained by MSCI indices. They also provide evidence supporting the view that the asset allocation of these funds can be well approximated by a mean-variance model in which managers seek to maximize excess returns while keeping the tracking error vis-à-vis the benchmark index low. However, supporting similar previous results, they find that modeling expected returns is of crucial importance—simply using average past returns to proxy for expected returns results in weak model performance.

Therefore, instead of using a particular asset allocation model, we ask whether the extent to which funds show under- and overweights in specific countries can be related to country transparency. In particular, we regress the actual country weights on benchmark index weights and measures of transparency. The EMF index includes only investment opportunities available to the international investor.[14] The regressions are of the form:

$$w_{i,j,t} = \alpha_j + \beta \cdot w_{i,t}^{benchmark} + \gamma \cdot OpacityIndex_{i,t} + \varepsilon_{it} \qquad (2)$$

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 clustering of the errors around the j dimension to avoid artificially inflated t-statistics.[15]

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[14] See Disyatat and Gelos (2001). For this exercise, we make use of their dataset, where some countries forming part of the MSCI index were excluded. They also excluded funds holding large amounts of cash and rebalanced the weights of the funds so that all weights add up to one. Because of this adding-up constraint, we exclude one country from each regression. The results reported are not materially affected by the choice of the omitted country.

[15] 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

With the exception of opacity in macroeconomic policymaking, lack of transparency is associated with lower exposure of emerging market funds (Table 2). The overall opacity index and all four indices of corruption are statistically significantly and negatively correlated with country weights.[16] The estimated effect is modest, but economically important: for example, the estimate using OFACTOR as the opacity index suggests that a country like Venezuela, currently represented with an average 0.4 percent weight in the sample's portfolios, could achieve a 1.7 average higher percentage weight in fund portfolios if it increased its transparency to Singapore's level. As reported in Disyatat and Gelos (2001), the MSCI indices explain a substantial fraction of the variation in country weights. The transparency indices and mean market capitalization do only add marginally to the R^2.[17]

Table 2. Regressions of Country Weights on Opacity Measures (Global Funds)

	O-Factor	MACROPOLICY OPACITY	MACRODATA OPACITY	CORP
MSCI Index	**0.839 (36.90)**	**0.933 (47.13)**	**0.829 (37.11)**	**0.806 (35.46)**
Opacity index	**-0.086 (-7.13)**	**-0.449 (-9.28)**	**-0.371 (-2.38)**	**-0.976 (-9.74)**
Number of obs.	29,621	24,944	31,180	31,180
Fund fixed effects	yes	yes	yes	yes
Adj. R^2	0.66	0.66	0.63	0.62

Dependent variable: w_{ijt}. T-statistics in parentheses (based on robust standard errors, allowing for clustering by funds). Regressions include fund fixed effects. Total number of countries: 19–21. Excluded country: Chile.

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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, 1986). 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.

[16] This finding is similar to that of Ahearne, Griever, and Warnock (2000), who 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.

[17] The effect of opacity may depend on market capitalization. We therefore also used percentage deviations from the MSCI benchmark a dependent variable, leaving out the MSCI index as an explanatory variable. This reduces our sample since some countries have zero weight in the MSCI, but the main results are not affected.

A. Robustness

Other factors are likely to be important in determining the country allocation of funds' assets, and we make an attempt to control for many that might be suspected of being correlated with opacity.[18] 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. Fund managers are likely to prefer countries with strong protection of minority shareholders, and transparency might pick up this effect. Therefore, we include the 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) for transition economies in the regressions. Countries classified by us as less transparent may be countries with closely held stock ownership. Pinkowitz, Stulz, and Williamson (2001) 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. 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—although there is no clear justification for doing so—we also include GDP per capita as an additional explanatory variable. 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.[19] Note that this in some sense represents an "overcorrection," since the political risk measure captures some country characteristics that are related to transparency—in fact these variables have occasionally been used to measure transparency.[20] We also include a three-year moving average of mean returns to capture the possibility that fund managers are return chasing. We allow for the effect of opacity to vary between tranquil and crises times.[21]

Lastly, exchange rate regimes might potentially be correlated with opacity and fund managers may have a preference for certain types of exchange rate arrangements. While the ICRG variables contain a component related to exchange rate variability, in another

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[18]The MSCI index weights themselves may be a function of opacity: when a market becomes more transparent, it may grow and increase its weight in the index. If this were the case, it would make it harder to find any significant effects of opacity.

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

[20] See Furman and Stiglitz (1998).

[21] We interacted the opacity variable with a crisis dummy, which was set equal to one for the period of the Asian, Russian, and Brazilian crises (97:07-98:01, 98:07-98:09, 99:01).

specification, we therefore explicitly include monthly dummies for five different types of exchange rate regimes based on recent work by Reinhart and Rogoff (2002).

After including all these control variables, all opacity variables continue to have negative and statistically significant coefficients (Tables 3 and 4), with their magnitude broadly unchanged. Interestingly, during crises, the effect of opacity becomes *less* important. The coefficients on the control variables mostly have the expected signs and are often statistically significant. An exception is that funds tend to prefer politically risky countries. Concerning exchange rate regimes, funds appear to have a "fear of floating."[22]

A potential problem is that some of our opacity measures were constructed toward the end or even after the sample period. We therefore also use an earlier measure of corporate opacity, namely the accounting standard variable proposed by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).[23] The measure was published in 1991, and for Indonesia and Pakistan we use values published in 1993 following Doidge, Karolyi and Stulz (2002). 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.

These results are not the artifact of individual outliers. We compare the means of the differences between actual and MSCI index portfolio weights for samples in which the opacity variable was below or above its median (Table 5). The differences in portfolio weights for the two subsamples are in line with the regression results and the hypothesis of equality in means can always be rejected.

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[22] Calvo and Reinhart (2002) show that governments suffer from a "fear of floating."

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

Table 3. Regressions of Country Weights on Opacity Measures (Global Funds), Including Control Variables

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY
MSCI Index	**0.861** **(43.79)**	**0.794** **(24.27)**	**0.840** **(31.08)**	**0.818** **(30.79)**
Opacity Index	**-0.156** **(-8.62)**	**-0.733** **(-8.35)**	**-0.508** **(-4.74)**	**-1.428** **(-5.42)**
Opacity Index·Crisis dummy	**0.009** **(6.60)**	**0.087** **(4.17)**	**0.215** **(2.86)**	**0.082** **(4.43)**
GDP per capita	**0.099** **(7.18)**	**0.074** **(2.47)**	**0.205** **(12.85)**	**0.079** **(2.98)**
Mean Turnover	**-5.177** **(-6.09)**	1.168 (1.12)	**-1.756** **(-2.54)**	**-7.145** **(4.65)**
Share of firms closely held	**-0.027** **(-5.51)**	**0.006** **(0.66)**	**-0.065** **(9.78)**	**-0.039** **(-5.99)**
Minority Shareholders' Rights	**-0.208** **(-4.12)**	**-0.379** **(-6.95)**	-0.092 (-1.88)	**-0.359** **(-4.80)**
ICRG Economic Risk	**-0.042** **(-2.73)**	**-0.033** **(-2.15)**	**-0.042** **(-2.89)**	**-0.061** **(-3.57)**
ICRG Financial Risk	-0.013 (-0.88)	0.014 (1.00)	**-0.051** **(-3.02)**	0.007 (0.48)
ICRG Political Risk	**-0.119** **(-14.79)**	**-0.068** **(-7.63)**	**-0.106** **(-12.83)**	**-0.084** **(-8.79)**
Historical returns	**20.857** **(6.49)**	**22.873** **(5.18)**	**16.419** **(4.48)**	**8.925** **(2.48)**
Number of obs.	25,255	21,672	25,379	25,844
Fund fixed effects	Yes	Yes	Yes	Yes
Adj. R^2	0.66	0.66	0.63	0.60

Dependent variable: w_{ijt}. T-statistics in parentheses (based on robust standard errors, allowing for error clustering by funds). Regressions include fund fixed effects. Total number of countries: 16.

Table 4. Regressions of Country Weights on Opacity Measures (Global Funds), Including Exchange Rate Variables

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY
MSCI Index	**1.041** **(47.56)**	**0.861** **(23.62)**	**0.888** **(33.23)**	**0.861** **(35.28)**
Opacity index	**-0.034** **(-1.44)**	**-0.602** **(-4.87)**	**-0.494** **(-4.59)**	**-2.197** **(-8.93)**
Opacity Index·Crisis dummy	**0.011** **(6.03)**	**0.151** **(6.92)**	**0.295** **(3.85)**	**0.111** **(6.11)**
GDP per capita	**0.194** **(12.55)**	**0.184** **(3.86)**	**0.198** **(12.29)**	**0.029** **(1.10)**
Mean Turnover	**-7.829** **(-10.39)**	0.973 (1.27)	**-5.615** **(-7.67)**	**-9.046** **(-5.86)**
Minority Shareholders' Rights	0.041 (0.68)	**-0.174** **(-2.20)**	**0.119** **(2.39)**	**-0.306** **(-4.07)**
Share of firms closely held	**-0.018** **(-4.25)**	**0.006** **(0.67)**	**-0.049** **(-7.85)**	**-0.019** **(-3.15)**
Exchange rate Dummy: peg	-0.181 (-0.29)	**0.433** **(0.68)**	0.557 (0.82)	0.592 (0.89)
Exchange rate Dummy: Limited Flexibility	-0.403 (-0.73)	0.905 (1.52)	0.258 (0.41)	0.355 (0.58)
Exchange rate Dummy: Managed Floating	-0.021 (-0.03)	**1.805** **(2.41)**	0.837 (1.15)	0.603 (0.85)
Exchange rate Dummy: Freely Floating	**-3.22** **(-4.77)**	-1.011 (-1.39)	**-1.809** **(-2.75)**	**-2.675** **(-4.05)**
Exchange rate Dummy: Freely Falling	-0.123 (-0.20)	0.647 (0.93)	0.094 (0.14)	-0.597 (-0.96)
ICRG Economic Risk	-0.014 (-0.95)	**-0.040** **(-2.76)**	**-0.072** **(-4.85)**	**-0.105** **(-6.05)**
ICRG Financial Risk	0.019 (1.55)	0.028 (1.53)	-0.022 (-1.36)	**0.033** **(2.43)**
ICRG Political Risk	**-0.166** **(-16.89)**	**-0.091** **(-8.73)**	**-0.132** **(-15.05)**	**-0.103** **(-11.60)**
Historical returns	0.453 (0.12)	**16.189** **(3.12)**	**15.36** **(3.18)**	-3.437 (-0.85)
Fund fixed effects	yes	yes	yes	Yes
Number of obs.	23,696	20,113	25,379	25,844
Adj. R^2	0.69	0.69	0.64	0.62

Dependent variable: w_{ijt}. T-statistics in parentheses (based on robust standard errors, allowing for error clustering by funds). Regressions include fund fixed effects. Total number of countries: 16.

Table 5. Tests of Differences in Means of Holdings

	Mean of difference between actual and MSCI weight for Opacity Measure below median (MDLOW)	Mean of difference between actual and MSCI weight for Opacity Measure above median (MDHI)	Test that MDLOW<=MIDIHI (p-value)
OFACTOR	**0.33**	**-0.16**	**0.000**
MACROPOLICY OPACITY	**0.37**	**-0.07**	**0.000**
MACRODATA OPACITY	**0.48**	**-0.25**	**0.000**
CORPORATE OPACITY	**0.64**	**-0.39**	**0.000**

B. Relative Importance of Different Transparency Dimensions

What is the relative importance of these dimensions of transparency? To assess this question, we run a simple "horserace" between our measures, including them jointly in regressions (Table 6). We do not include OFACTOR since it is a summary variable encompassing both corporate and macroeconomic transparency. When we do not include control variables except for the benchmark index weights (as in Table 2), the coefficients on MACROPOLICY OPACITY and CORPORATE OPACITY retain their approximate size and significance. By contrast, when including control variables (as in Table 3), the coefficients become much larger in (absolute) size, with the coefficient on MACRODATA OPACITY turning positive. This suggests that there could be a problem of multicollinearity. We tentatively conclude that while corporate opacity and macropolicy opacity clearly matter for asset allocation, the importance of macroeconomic data availability cannot be established as firmly.

Table 6. Horserace Between Transparency Measures

Opacity variable	**Regression incl. only benchmark weights as control variable (as in Table 2)**	**Regression incl. control variables (as in Table 3)**
MACROPOLICY OPACITY	**-0.211** **(-2.37)**	**-1.121** **(-5.67)**
MACRODATA OPACITY	**-0.345** **(-2.18)**	**1.964** **(7.25)**
CORPORATE OPACITY	**-0.986** **(-5.31)**	**-1.243** **(-6.43)**
Number of obs.	21,826	16,995
Adj. R^2	0.66	0.77

VI. Transparency, Herding, and the Reaction to News

A. Herding

Is herding is more prevalent in less transparent countries? To measure the extent of herding behavior, we compute a statistic of trading comovement originally introduced by Lakonishok, Shleifer, and Vishny (1992).[24] The measure allows us to assess whether funds move in the same direction more often than one would expect if they traded independently and randomly. The indicator, denoted HM (for herding measure), is given by:

$$HM_{it} = |p_{it}\text{-}E[p_{it}]| - E|p_{it}\text{-}E[p_{it}]|, \tag{3}$$

where p_{it} is the proportion of all funds active in country i in month t that are buyers:

$$p_{it} = \frac{\#ofBuyers(i,t)}{\#ofBuyers(i,t)+\#ofSellers(i,t)}, \tag{4}$$

and $E[p_{it}]$ is its expected value. By taking the absolute value, the first term in equation (3) captures imbalances in both directions, buying or selling.

The expected fraction of buyers $E[p_{it}]$ may vary over time—for example, there might be periods of large inflows into emerging market funds, during which we would observe most funds buying contemporaneously. We approximate $E[p_{it}]$ by the total number of net buyers across all countries divided by the total number of active funds in that month:

$$E[p_{it}] = \frac{\sum_{i=1}^{N} \#Buyers(i,t)}{\sum_{i=1}^{N} \#Buyers(i,t)+\#Sellers(i,t)} \tag{5}$$

Since the distribution of the absolute value of the first expression is not centered around zero, the expected value $E|p_{it}\text{-}E[p_{it}]|$ needs to be subtracted. Under the null hypothesis of no herding, this expected value is calculated assuming that the number of buyers follows a binomial distribution. It should be pointed out that evidence for correlated trading patterns is a necessary,

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[24] Borensztein and Gelos (forthcoming) compute and discuss herding among the funds examined here. They find moderate, but statistically significant evidence for herding. The mean of HM across countries and over time is 7.7 percent, about twice as large as the number found for domestic U.S. institutional investors. See Kim and Wei (2002a) and Choe, Kho, and Stulz (1999) for evidence of herding among international investors in Korea.

but not sufficient condition for the existence of herding in a strict sense—the specific class of investors we are examining may react in the same way to news about fundamentals.

We compute averages of HM_{it} for each country over the 60 periods. To include only meaningful notions of "herds," we include only observations with at least five active funds. Moreover, in order to limit the impact of approximation errors, we classify a fund as buyer or seller only if the absolute value of the calculated (out-) flow into (or from) a country is larger than three percent of the fund's assets in that country. We then examine correlations between herding and country transparency. To our knowledge, this is among the first attempts to relate the degree of herding to market rather than investor characteristics.

While herding is somewhat higher in less transparent countries, the relationship is weak. Mean herding values are higher for more opaque countries, although the difference is only significant at the 5 percent level for OFACTOR and at the 10 percent confidence level in the case of MACROPOLICY OPACITY and CORPORATE OPACITY (Table 7). Similarly, herding is positively correlated with opacity indices, albeit only significant at the 5 percent confidence level in the case of OFACTOR, and the 15 percent level for MACRODATA OPACITY and CORPORATE OPACITY (Table 8). Figure 2 shows the simple, unconditional relation between HM and OFACTOR.

The results are similar when including control variables. We regress these herding averages on our country transparency indices, average turnover and average market capitalization (Table 9).[25] Mean turnover (defined as the country average of monthly value traded divided by market capitalization) should proxy for market liquidity. Herding strategies are likely to be easier to implement in more liquid markets, where the price impact of any trade is lower. Borensztein and Gelos (forthcoming) report that herding is more pronounced in larger markets, and we therefore include size as a control variable in these simple regressions. The coefficients on two transparency measures, namely OFACTOR, and CORPORATE OPACITY are significant at the five percent level. In some cases, the included variables explain a substantial fraction of the variation of herding across countries (the R^2's range from 0.01 to 0.3). When including GDP per capita as an additional regressor, only OFACTOR remains significant at the five percent level (CORPORATE OPACITY is still significant at the 10 percent level).

[25] Wherever we have time variation in the transparency levels, such as in the case of MACRODATA OPACITY, we use simple averages of the variables.

Table 7. Tests of Differences in Herding Means

	Mean Herding (in %) for Opacity Measure Below Median (MHLOW)	Mean Herding (in %) for Opacity Measure Above Median (MHHI)	Test That MHLOW>=MHHI (p-value)
OFACTOR	**6.6**	**9.0**	**0.03**
MACROPOLICY OPACITY	**6.7**	**8.7**	**0.08**
MACRODATA OPACITY	7.4	8.6	0.29
CORPORATE OPACITY	7.1	8.6	0.11

Table 8. Regressions of Mean Herding Measures on Opacity Variables

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY
Opacity Index	**0.001** **(2.17)**	0.002 (0.70)	0.017 (1.56)	0.012 (1.60)
Number of obs.	30	27	38	31
R^2	0.11	0.02	0.12	0.13

Note: T-statistics (based on heteroskedasticity-robust estimates) are given in parentheses. Regressions also include a constant (not shown). Coefficients that are significant at the 5 percent level are marked bold.

Table 9. Regressions including control variables

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY
Opacity Index	**0.002** **(2.48)**	0.003 (1.04)	0.016 (1.51)	**0.019** **(2.22)**
Mean turnover	-0.061 (-0.95)	-0.026 (-0.34)	-0.074 (-0.72)	0.023 (0.44)
Mean market capitalization	0.06 (1.89)	**0.149** **(2.90)**	-0.007 (-0.17)	**0.090** **(2.49)**
Number of obs.	30	26	37	31
R^2	0.16	0.33	0.13	0.31

Note: T-statistics (based on heteroskedasticity-robust estimates) are given in parentheses. Regressions also include a constant (not shown). Coefficients that are significant at the 5 percent level are marked bold.

Figure 2. Mean Country Herding Measures and OFACTOR

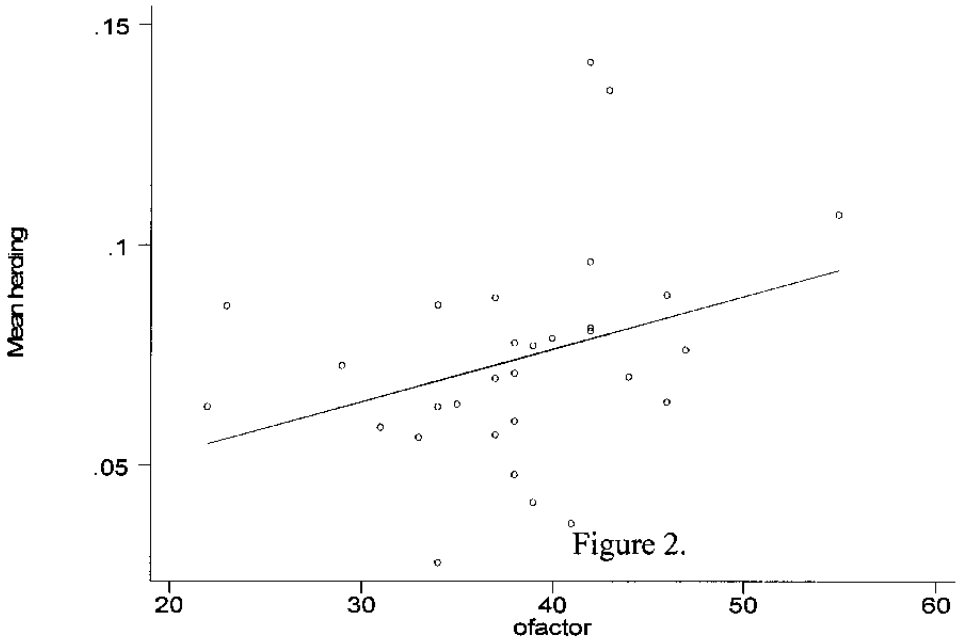


Figure 2.

B. The Reaction to News

In order to assess whether funds react differently to news depending on the degree of country opacity, we relate changes in country portfolio weights to revisions in Consensus GDP forecasts (CONSNEWS).[26] First, we regress changes in portfolio weights on CONSNEWS and an interaction variable of CONSNEWS multiplied with the various transparency variables to assess the differential effect of opacity.[27] Then, again we include control variables to assess the robustness of our results. The regressions are of the form:

$$\Delta w_{i,j,t} = \alpha \cdot CONSNEWS_{i,t} + \beta \cdot OpacityIndex \cdot CONSNEWS_{i,t} + \gamma \cdot ControlVar \cdot \ CONSNEWS_{i,t} + \eta_j + \nu_i + \varepsilon_{i,j,t} \quad (6)$$

[26] The surveys are published at the end of month in which they are conducted. We use a weighted average of current-year and year-ahead forecasts: in February, the current-year forecast is given a weight of 5/6, and next year's forecast a weight of 1/6, and so forth. We call the bimonthly difference between these forecasts CONSNEWS.

[27] Note that we do not include the opacity variable as a separate regressor, since opacity levels should not have an effect on changes in country weights.

where $\Delta w_{i,j,t}$ denotes the change of weight of country i in fund j's portfolio at the end of period t and η_j and ν_i are fund and country fixed effects.

The simple regressions without control variables suggest that funds tend to respond more to macroeconomic news in countries with higher overall and corporate opacity, while the effect of macroeconomic opacity acts in the opposite direction. In the simple regressions in Table 9, both interaction terms with OFACTOR, and CORPORATE OPACITY are significantly positive, while the coefficient on the interaction term with MACRODATA OPACITY and MACROPOLICY OPACITY are negative and statistically significant.

However, after controlling for other country variables, including risk factors, the results show that the reaction to news is more muted in more opaque countries (Table 10). The only exception is the effect of CORPORATE OPACITY. The results also indicate that funds react more strongly about news in larger and more liquid markets, since the interaction terms with market capitalization and turnover are significantly positive. The results are robust to the inclusion of country random effects.

Why do fund managers attach less weight to macroeconomic news about more opaque countries? The earlier theoretical discussion suggests that possibly the signal-to-noise ratio is lower in more opaque countries. Accordingly, after the release of positive macroeconomic news, fund managers may want to wait for further confirmation before engaging in a costly reallocation of assets across countries.

Table 10. Reaction to News

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY
GDP forecast revision (CONSNEWS)	**-0.158** **(-1.98)**	**0.395** **(8.77)**	**0.214** **(7.17)**	**-0.209** **(-2.86)**
GDP forecast revision (CONSNEWS) ·OpacityIndex	**0.007** **(4.03)**	**-0.052** **(-5.08)**	**-0.111** **(-2.77)**	**0.108** **(5.22)**
Fund fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
No. of obs.	53,763	52,293	56,954	59,245
Adj. R^2	0.01	0.02	0.01	0.01

Table 11. Reaction to News (Including Control Variables)

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY
GDP forecast Revision	**0.460** **(1.98)**	**0.375** **(4.70)**	**0.321** **(4.42)**	**-0.499** **(-2.40)**
GDP forecast revision ·OpacityIndex	**-0.007** **(-2.17)**	**-0.039** **(-2.87)**	**-0.47** **(-7.84)**	**0.090** **(2.32)**
GDP forecast revision ·Mean turnover	**3.73** **(11.85)**	**1.414** **(4.78)**	**3.46** **(11.42)**	**3.389** **(11.38)**
GDP forecast Revision ·Mkt cap.	**0.58** **(2.62)**	**3.886** **(12.04)**	**1.64** **(6.88)**	**0.775** **(3.36)**
GDP forecast revision ·GDP per capita	**-0.03** **(-8.41)**	**-0.019** **(-3.12)**	**-0.02** **(-7.88)**	**-0.025** **(-8.18)**
GDP forecast revision ·ICRG Pol. Risk	**-0.003** **(-2.31)**	**-0.019** **(-12.00)**	**-0.01** **(-7.56)**	**-0.003** **(-2.06)**
GDP forecast revision ·ICRG Econ. Risk	**-0.016** **(-4.59)**	**-0.14** **(-4.31)**	**-0.01** **(2.34)**	**-0.013** **(-4.05)**
GDP forecast revision ·ICRG Fin. Risk	**0.02** **(6.91)**	**0.039** **(13.32)**	**0.03** **(10.9)**	**0.026** **(9.47)**
Fund fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
No. of obs.	53,763	45,897	56,469	59,231
R^2	0.01	0.02	0.01	0.01

In both tables, the dependent variable is the change in country i's weight in fund j's portfolio at time t, minus the weight at time t-2: $w_{i,j,t} - w_{i,j,t-2}$. Regressions include fund- and country fixed effects. T-statistics are given in parentheses (based on robust standard errors, allowing for error clustering within funds).

VII. The Reaction Around Crises

Possibly the most important question in our context concerns the effect of transparency on the behavior of market players during crises. Are more opaque countries more prone to contagion effects? Do transparency measures, beyond and above macroeconomic indicators, explain the degree of confidence loss across countries during turbulent times?

Johnson and others. (2000) have examined whether measures of corporate governance, in particular the effectiveness of minority shareholder protection, help explain the extent of currency depreciation and stock market decline across countries during the Asian crisis. They find that corporate governance variables explain more 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, is driving the results.

We relate the size of fund outflows during the Asian and Russian crises to our measures of country transparency. Specifically, we look at cumulative net outflows of individual funds across countries. We focus on the months of the largest outflows by emerging market equity funds. For the Asian crisis, we therefore concentrate on the period September 1997–December 1997, and for the Russian crisis we cumulate outflows over May 1998 until September 1998. Our main conclusions are not sensitive to the choice of horizons.

The degree of opacity is correlated with the size of net outflows in both crises (Tables 13–16), and the link is stronger when controlling for other variables. For the Asian crisis, while simple correlations give a very mixed picture, higher degrees of overall and corporate opacity are associated with higher outflows after controlling for liquidity (turnover), other sources of risk (ICRG indices), and income levels (GDP per capita). In the case of the Russian crisis, the link between opacity and outflows is stronger, with positive and statistically significant coefficients on three opacity variables (MACROPOLICY OPACITY, MACRODATA OPACITY, and CORPORATE OPACITY) after including control variables. Note that the estimation technique used here is very conservative, since in addition to 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). Simple differences in means tests (Table 15) confirm that total outflows were higher for more opaque countries, although the differences are only statistically significant at the 5 percent level for the macroeconomic opacity variables.

As mentioned earlier, a potential problem is that our opacity measures were largely constructed after the crises. Perceptions about opacity could therefore in principle be affected by the extent to which countries were affected during the crises, yielding overestimates of the impact of transparency. On the other hand, countries strongly affected by the crises might have improved their transparency, causing us to underestimate the effect of opacity. For MACRODATA OPACITY, this is not a problem since we use scores from June 1997. As before, in order to employ an earlier measure of corporate opacity, we use the accounting standard variable proposed by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) (LLSV). The measure was published in 1991. It turns out that the results using this variable are very similar to the ones obtained with CORPORATE OPACITY except in the case of the Russian crisis, where the index enters significantly in the simple regression.

We also investigated whether the relationship between flows and transparency holds in the aggregate, including inflows and summing up all flows across funds. It turns out that the picture is more mixed. During the month of the highest outflows during the Russian crisis, there is a very marked correlation between flows and our transparency measures (see Figure 3). During the Asian crisis, this relationship is weaker (Figure 4), and it is stronger for outflows than

for overall flows (not shown). This reflects the fact that, as discussed in Borensztein and Gelos (forthcoming), there is substantial heterogeneity in the behavior of funds: in the course of a crisis, some funds that initially flee vulnerable countries reinvest in them, taking advantage of price drops and acting as contrarian investors. Nevertheless, the overall importance of transparency for determining the degree to which countries were affected during the crisis is clearly visible in the relationship between US$ stock returns and the OFACTOR: in the months of the highest outflows, stocks returns were strongly correlated with the degree of opacity (Appendix II, Figures A1 and A2).

Table 12. Asian Crisis: Regression of Cumulative Outflows on Opacity Variables

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY	LLSV Accounting Standards
Opacity variable	0.001 (1.41)	**-0.009** **(-2.54)**	**0.022** **(2.86)**	0.008 (1.21)	0.0003 (0.95)
R^2	0.35	0.31	0.31	0.31	0.34
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Country random effects	Yes	Yes	Yes	Yes	Yes
No. of countries	26	26	32	28	22
No. of obs	964	872	1076	1089	1046

Note: Dependent variable: Sum of fund-level outflows by country (absolute values) over the period 97:09–97:12 divided by initial assets in the respective county in 97:08. 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 LLSV.

Table 13. Asian Crisis: Regression of Cumulative Outflows on Opacity Variables, Including Control Variables

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY	Corp. Opacity: LLSV Accounting Standards
Opacity variable	**0.003** **(3.32)**	-0.005 (-1.10)	0.009 (0.84)	**0.040** **(4.11)**	**0.002** **(4.12)**
Turnover	0.000 (0.01)	0.007 (0.08)	0.115 (0.76)	0.088 (1.32)	0.389 (0.55)
GDP per capita	0.001 (1.35)	**0.005** **(2.66)**	0.000 (1.08)	0.000 (1.08)	-0.007 (-0.11)
ICRG Economic Risk	0.001 (0.45)	**0.004** **(2.00)**	0.001 (0.63)	0.003 (1.50)	0.002 (0.98)
ICRG Financial Risk	-0.003 (-1.21)	-0.003 (-1.34)	-0.002 (-1.04)	-0.003 (-1.41)	-0.003 (-1.26)
ICRG Political Risk	**0.002** **(2.73)**	0.000 (1.34)	**0.002** **(2.61)**	**0.003** **(3.10)**	**0.004** **(4.16)**
R^2	0.36	0.33	0.32	0.34	0.37
Country random effects	Yes	Yes	Yes	Yes	Yes
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
No. of countries	26	25	30	27	22
No. of obs	964	859	1058	1084	1046

Note: Dependent variable: Sum of fund-level outflows (absolute value) by country over the period 97:09–97:12 divided by initial assets in the respective county in 97:08. Regressions include fund-fixed effects and country random effects. Z statistics are given in parentheses. *Significant at the 10 percent level. LLSVaccounting standards=100-original accounting standard variable reported in LLSV.

Table 14. Russian Crisis: Regression of Outflows on Opacity Variables

	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY	Corp. opacity: Accounting Standards LLSV
Opacity variable	-0.0003 (-0.32)	**0.011** **(2.96)**	0.015 (1.54)	-0.002 (-0.17)	**0.009** **(2.10)**
R^2	0.24	0.28	0.24	0.25	0.26
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Country random effects	Yes	Yes	Yes	Yes	Yes
No. of countries	27	26	34	29	22
No. of obs	518	502	584	527	457

Note: Dependent variable: Sum of fund-level outflows by country (absolute values) over the period 98:05-98:09 divided by initial assets in the respective country in 98:04. 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 LLSV.

Table 15. Russian Crisis: Regression of Outflows on Opacity Variables, Including Control Variables

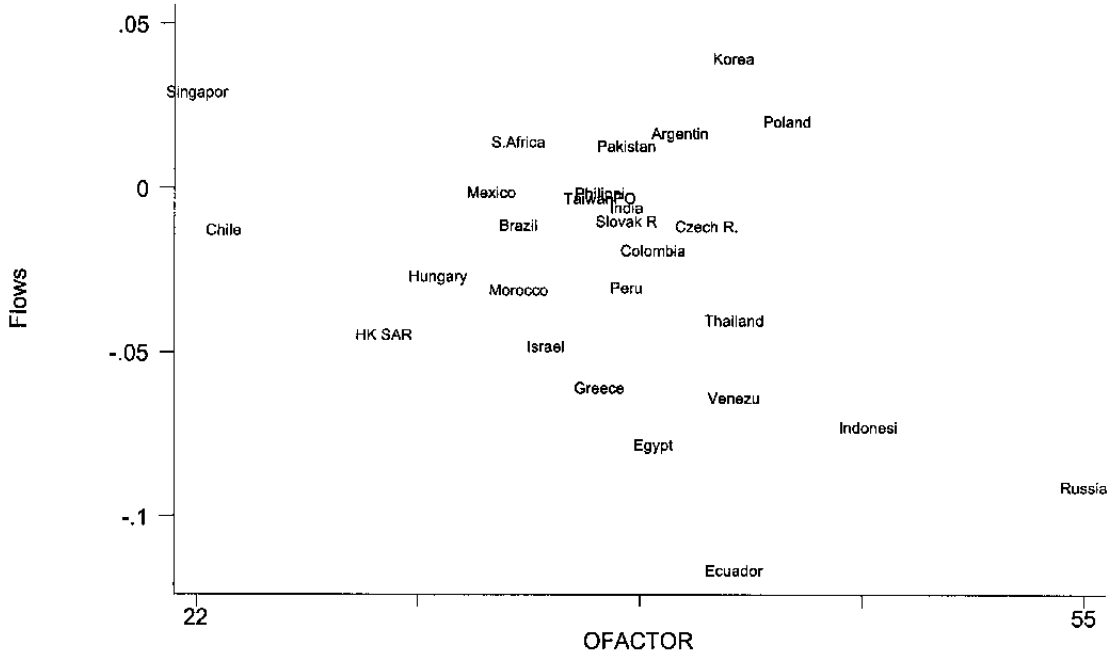
	OFACTOR	MACROPOLICY OPACITY	MACRODATA OPACITY	CORPORATE OPACITY	Corp.Opacity Accounting Standards LLSV
Opacity variable	-0.001 (-0.92)	**0.022** **(4.52)**	**0.046** **(3.79)**	**0.044** **(3.25)**	**0.002** **(4.89)**
Turnover	0.030 (0.21)	-0.172 (-1.22)	0.017 (0.09)	-0.070 (-0.54)	0.015 (0.107)
GDP per capita	0.000 (0.00)	0.000 (0.18)	0.000 (0.41)	0.003 (1.93)	**0.007** **(4.36)**
ICRG Economic Risk	-0.0008 (0.35)	0.004 (1.83)	0.002 (1.20)	**0.006** **(2.79)**	**-0.006** **(-2.17)**
ICRG Financial Risk	**-0.007** **(-4.48)**	**-0.010** **(-6.51)**	**-0.009** **(-5.54)**	**-0.007** **(-5.12)**	**-0.008** **(-4.61)**
ICRG Political Risk	0.0008 (0.12)	**0.002** **(2.28)**	**0.002** **(2.69)**	**0.002** **(2.94)**	**0.003** **(3.39)**
R^2	0.28	0.34	0.29	0.30	0.34
Fund fixed effects	Yes	Yes	Yes	Yes	Yes
Country random effects	Yes	Yes	Yes	Yes	Yes
No. of countries	27	25	32	28	22
No. of obs	518	490	569	524	457

Note: Dependent variable: Sum of fund-level outflows (absolute value) by country over the period 98:05-98:09 divided by initial assets in the respective country in 98:04. 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 LLSV.

Table 16. Tests of Differences in Means of Withdrawals

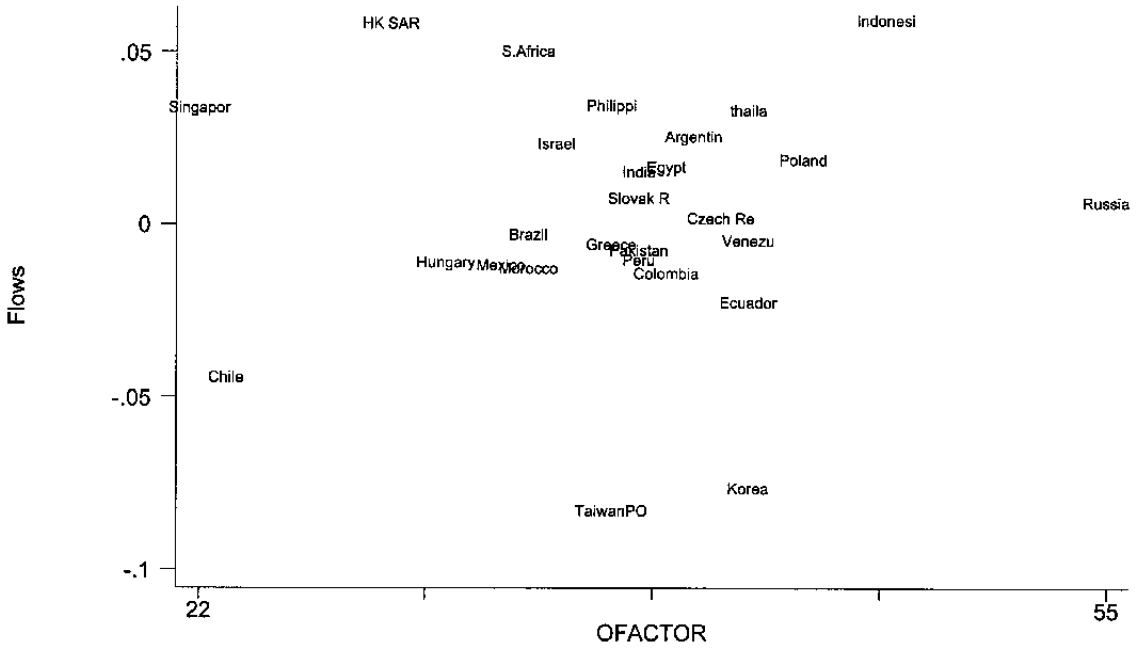
Asian Crisis	Mean withdrawals (in % of total initial assets) for Opacity measure below median (WLOW)	Mean withdrawals (in %) for Opacity Measure above median (WHI)	Test that WLOW>=WHI (p-value)
OFACTOR	0.15	0.17	0.12
MACROPOLICY OPACITY	0.16	0.17	**0.01**
MACRODATA OPACITY	0.14	0.18	**0.00**
CORPORATE OPACITY	0.16	0.16	0.32
Russian Crisis			
OFACTOR	0.17	0.18	0.20
MACROPOLICY OPACITY	0.16	0.19	**0.01**
MACRODATA OPACITY	0.14	0.20	**0.00**
CORPORATE OPACITY	0.17	0.18	0.07

Figure 3. Aggregate Equity Fund Flows in August 98 (Russian Crisis) and Opacity



Note: "Flows" denote aggregate flows divided by aggregate assets in the respective country in the previous month.

Figure 4. Aggregate Equity Fund Flows in October 1997 (Asian Crisis) and Opacity



VIII. CONCLUSION

While this first assessment of the impact of country transparency on the behavior of a specific class of investors could not be expected to answer all questions in this complex area, we have made important progress. On the beneficial aspects of country transparency, we were able to confirm the presumption that on average, international funds do prefer to hold more assets in more transparent markets and that herding among funds is somewhat less prevalent in more transparent countries. We find support for the view that during the Russian crisis—and, to a lesser extent during the Asian crisis—international investors tended to flee more opaque markets. However, the theoretical ambiguity on the effects of transparency is visible in our results regarding the reaction to news. Funds do not overreact to news about opaque countries—in fact they react less to macroeconomic news about countries characterized by a lack of transparency.

As mentioned in the introduction, the evidence presented here on the effects of opacity is likely to represent a lower bound for the overall effects on international investors, given that we focused on funds specialized in overcoming informational barriers in emerging markets. In future research, it would be useful to contrast these findings with an examination of the behavior of other players in international capital markets—crossover investors, fixed-income funds, and banks.

Transparency Variables

Corporate Transparency

The Global Competitiveness Report includes results from surveys about the level of financial disclosure. The respondents have 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 surveys carried out one year earlier. 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 Transparency

Transparency of Macroeconomic Policies

Here, we rely on two measures developed by Oxford Analytica for Wilshire Associates. Wilshire Associates (2002) had in turn 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. 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**.

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.

A Composite Index

The accountancy and consulting company PricewaterhouseCoopers has recently 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 (PricewaterhosueCoopers, 2001): bureaucratic practices (corruption), legal system, government macroeconomic policies, accounting standards and practices, and regulatory regime. This variable is called **OFACTOR**.

Table A1. Transparency Indices (Averages)

COUNTRY	OFACTOR	MACRODATA	MACROPOLICY	CORP	LLSV Accounting
Argentina	40	0.20	2	3.13	55
Bangladesh	.	1.79	.	.	.
Botswana	.	3.32	.	.	.
Brazil	34	0.11	2	3.03	46
Chile	23	0.62	2	2.20	48
China		1.87	7	4.23	.
Colombia	39	1.27	3	3.57	50
Czech Rep.	41	0.27	2	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	.	2.18	31
Hungary	31	0.35	2	3.23	.
India	38	1.45	4	3.22	43
Indonesia	47	0.71	4	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	3.25	38
Malaysia	.	0.86	4	2.86	24
Mauritius	.	2.91	.	3.14	.
Mexico	33	0.32	3	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	3.33	.
Portugal	.	0.56	.	2.88	64
Romania	.	0.41	.	.	.
Russia	55	0.34	5	4.21	
South Africa	34	0.73	3	2.55	30
Singapore	22	0.84	.	2.06	22
Slovak Rep.	38	0.27	.	3.78	.
Sri Lanka	.	1.12	6	.	.
Taiwan Province of China	37	.	4	2.59	35
Thailand	42	0.51	5	3.75	36
Turkey	46	0.50	5	2.89	49
Venezuela	42	0.90	6	4.28	60
Zimbabwe	46	1.40	.	3.17	.

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.

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		

Figure A1. Equity Market Returns and Opacity during the Asian Crisis (Nov. 1997)

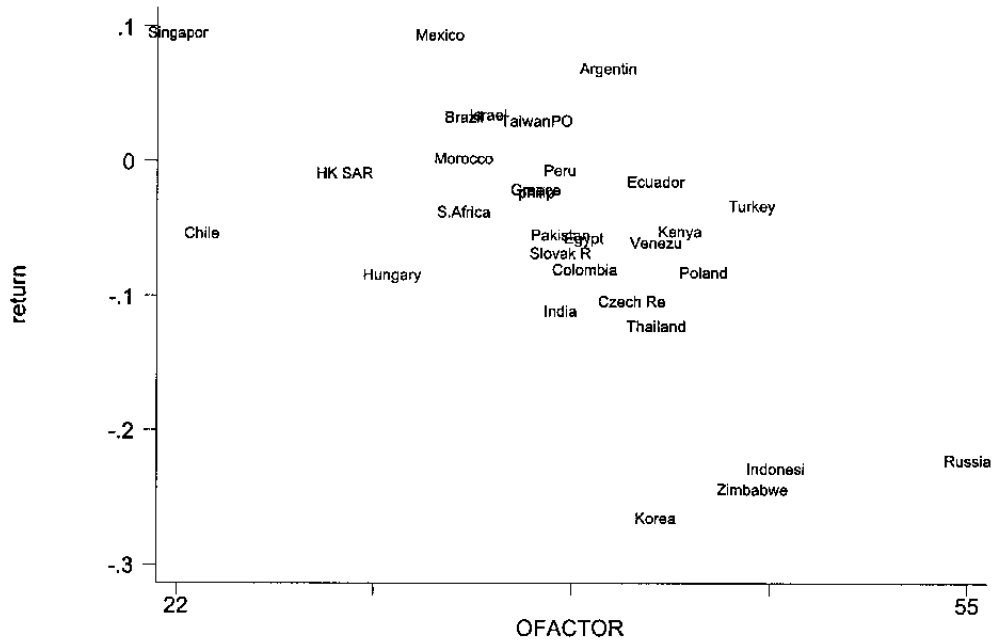
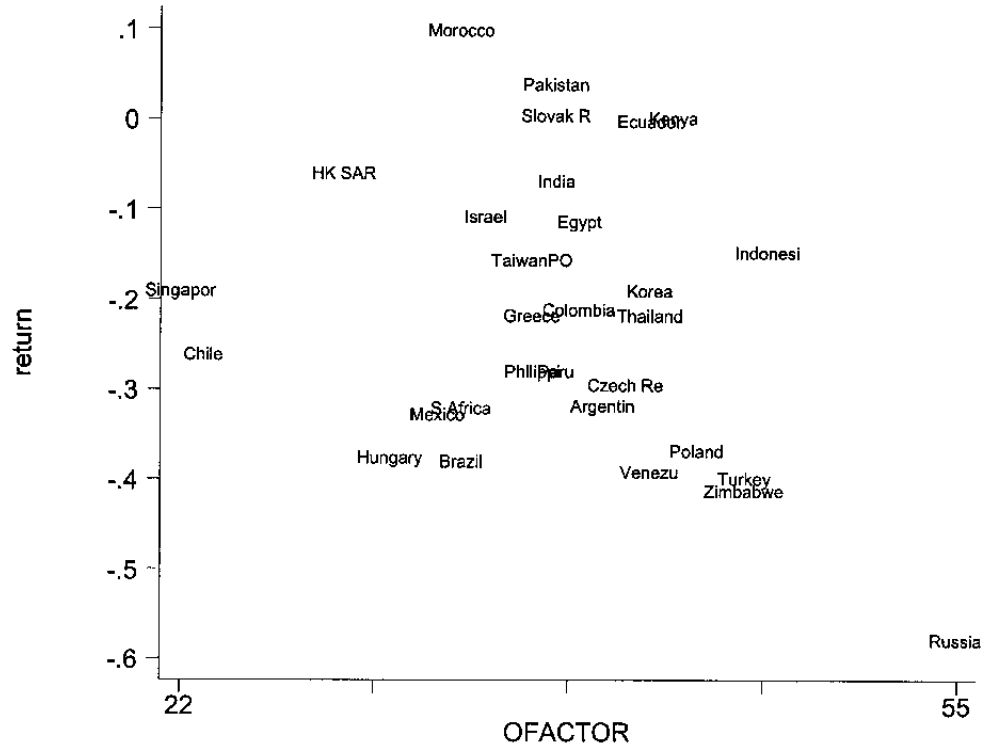


Figure A2. Equity Market Returns and Opacity during the Russian crisis (Aug.1998)



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