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Kenneth A. Froot
Tarun Ramadorai

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ABSTRACT

We examine the forecasting power of international portfolio flows for local equity markets and attempt to attribute it to either better information about fundamentals on the part of international investors, or to price pressure. Price pressure is a potential explanation because flows have positive contemporaneous price impacts and are strongly positively autocorrelated. We find that cross-border flows forecast both individual country equity market prices *and* associated US closed-end country fund prices, even after controlling for closed-end fund purchases. Cross-border flows have no discernable impact on the difference, the closed-end fund discount. This fact is consistent with the information story, which says that cross-border inflows predict no change in the discount, but forecast positive changes in both net asset values and closed-end fund prices. This fact also contradicts the price pressure story, which predicts that cross-border inflows increase local country equity prices, thereby increasing the closed-end fund discount. We also use our approach to test for the presence of trend following in cross-border flows based on relative, as well as absolute returns. Like other studies, we find evidence of trend following based on absolute returns. Interestingly, however, we find also that flows are trend reversing based on relative returns. Flows therefore seem to be stabilizing with respect to notions of relative, but not absolute, value.

Kenneth A. Froot
Harvard Business School
Boston, MA 02163
and NBER
Tel: 617-495-6677
Fax: 617-496-7357
Email: kfroot@hbs.edu

Tarun Ramadorai
Harvard Business School
Boston, MA 02163
Tel: 617-495-5022
Fax: 617-496-7357
Email: tramadorai@hbs.edu

Introduction

Past research shows that the transactions of international investors positively impact local-country equity prices. Tesar and Werner (1994, 1995) and Brennan and Cao (1997) found that over relatively low frequencies (e.g., quarterly) international prices tend to rise when international investors purchase – i.e., when domestics sell – local equities. Of course, such low frequency correlations are not enough to establish whether the correlated price changes are contemporaneous with lead or lag portfolio flows. Only higher frequency data can determine this. Froot, O'Connell and Seasholes (2001) use measures of daily international investor flows across a wide number of countries, and find evidence that suggests at least a portion of the price increase occurs subsequent to internationals' purchases.[1] This suggests that international investors anticipate domestic-market equity returns. However, interpreting the source of this observed 'anticipation effect' is not straightforward. Indeed, there are two very different interpretations, and these have different implications for the informedness of international investors.

Under the first interpretation, international investors have better information about fundamentals pertaining to equities than do domestics with whom they trade. As a result, they are buyers (sellers) before a widely perceived improvement (deterioration) in fundamentals takes place. This view contradicts the prevailing wisdom that international investors face informational disadvantages relative to domestics (see, for example, Brennan and Cao (1997)). This prevailing wisdom is supported by evidence in Choe, Kho and Stulz (2001), using data from Korea. They show that foreign investors appear to trade at worse prices than resident investors, and that this effect is most apparent in large trades in the equities of small firms. A recent study by Seasholes (2000), however, provides evidence in support of the view that international investors are better informed than domestics, using earnings announcements of local-market firms. He finds that international investors tend to be buyers (sellers) in advance of what turn out to be good (bad) earnings surprises. Indeed, Seasholes finds that international investor profits are strongest in large firms' equities, and it is large firms that are most highly concentrated in international portfolios.[2] So international investors may have a fundamental informational advantage in the equities of larger, more publicly recognized firms.

The second interpretation of the observed anticipation effect is that follow-on returns are attributable to price pressure. Under this view, international investors have no special knowledge of country fundamentals. Rather, international investors' purchases are positively autocorrelated at high frequencies, which in turn leads to conditional autocorrelation in returns. Such positive conditional autocorrelation arises naturally in models in which investors think they are informed and are able to hide their orders among liquidity or other random trades (e.g., Kyle (1985), and in models in which some group of investors displays positive feedback trading or a preference for winners (e.g., Frankel and Froot (1987), DeLong, Summers, Shleifer, and Waldmann (1990), Hong and Stein (1999), and Barberis and Shleifer (2000). In these latter models, the autocorrelation of a group of investors' trades generates predictability in prices, irrespective of the relationship of these trades to fundamentals, and even if there are rational traders in the model. Thus, under the price pressure interpretation, current purchases by international investors forecast additional future international demand, but not necessarily an improvement in fundamentals.

[1] High frequency data have also been used by Choe, Kho and Stulz (1999, 2001), Grinblatt and Keloharju (2000) in an international context and by Goetzmann, Massa and Rouwenhorst (1999) domestically.

[2] See Kang and Stulz (1997) for evidence pertaining to Japan.

Normally, one might distinguish between these two stories by examining the longer-term behavior of prices, exploiting the notion that price pressure effects eventually revert, whereas information effects do not. However, such a test is unlikely to be informative, given the short samples available, the relatively slow decay of portfolio flow autocorrelations, and the usual econometric difficulties in identifying longer-term excess returns. As a result, we need a different kind of test to determine whether it is information or price pressure that is driving the observed anticipation effect.

This paper proposes such a test using closed-end country fund prices and associated net asset values (NAVs). We consider experiments in which we measure an increase in cross-border flows into country fund net assets, holding constant purchases of closed-end fund equities. Under the price pressure story, cross-border flows into the net assets predict an increase in the closed-end fund discount. Here such flow drives up the price of the net assets of the fund *relative* to the price of the closed-end fund. Alternatively, under the information story, cross-border flows into the net assets predict no change in the closed-end fund discount. If there is indeed information about future value, we should be able to detect a subsequent increase in *both* the price of the net assets *and* the price of the closed-end fund. There is also a third story, which acts as our null hypothesis: that the flows are random collections of buys and sells so that there is no relationship between cross-border flows and the associated closed-end fund prices and NAVs. Thus, our setup treats both the price pressure and information stories as alternative hypotheses, to be tested against the null that there is no relationship between cross-border flows and future prices.

The use of closed-end funds in our tests is important. Claims against the underlying net assets provide the same cashflows as do claims against the fund's shares. Innovations in expected future cashflows are commonly reflected in changes in both the net asset value and in the closed-end fund price; consequently, much of the variation in the discounts (the difference between NAV and Price) is attributable to price pressure. Indeed, a great deal of research has highlighted the fact that fluctuations in discounts appear related to investor sentiment and unrelated to fundamentals.[3] Closed-end fund discounts are therefore a simple but robust way to gain power in our tests against the price pressure alternative.

Of course, some sentiment shocks may not affect the discount at all, representing instead a common, but transient, source of demand for both net assets and closed-end fund shares. In such a case NAVs and prices may both move up following a cross-border inflow – which is what the information hypothesis, not the price pressure hypothesis, would predict. We have two lines of defense against such an argument. First, we can reinstate a crisp separation between our two alternatives by controlling for net purchases of closed-end fund shares by different groups (retail and institutional). As long as the sensitivity of cross-border flows to sentiment shocks is also picked up by our measures of closed-end fund share purchases, we can be confident that a finding in favor of the information alternative is not attributable to sentiment, and is therefore not being generated by a common price pressure effect. In fact, we find that closed-end fund purchases have little or no effect on the results. Our second response to the common sentiment shock argument is that it is very difficult to make on theoretical grounds without at least some trading flow that is related to the sentiment shock. Virtually all investors would need to be equally subject to the same sentiment shock if we were to find that such shocks affected prices, but not trading. Thus, the argument that a pervasive sentiment shock drives cross-border flows, but is missed by *all* of our closed-end fund flow measures seems to us precarious.

[3] See, for example, Lee, Shleifer, and Thaler (1991), and Frankel and Schmukler (1996, 2000).

To preview our results, we find that cross-border inflows into foreign countries positively forecast changes in both NAVs and prices. The forecasts are roughly of the same magnitude, and are sufficiently similar that the flows have no detectable impact on future discounts. Thus, the data are broadly consistent with the information story. When we control for closed-end fund net purchases (classified as either institutional or retail), we find no diminution of the results. Indeed, flows into closed-end funds seem to be unrelated to cross-border flows and to future changes in NAVs and prices. Thus, the evidence points strongly toward the information hypothesis as the explanation behind the positive forecasting power of cross-border flows.

Our findings are not consistent with Choe, Kho, and Stulz (2001), who use Korean flow data and find evidence of local-market residents buying (selling) in advance of price increases (decreases). We also reach a very different conclusion in our tests than do Frankel and Schmukler (2000), who use price data only. They find that changes in NAVs and discounts predict closed-end fund prices, but that the prices and discounts do not so strongly predict changes in NAVs. Our price data exhibit this feature as well. However, their finding need not imply that international investors are less well informed than local residents. The lag in closed-end fund prices compared with local stock markets suggests that local residents are better informed than investors in closed-end fund shares. When they do trade, though, international investors appear to be better informed than *both* these groups. However, international investors do not appear to exploit the staleness in closed-end fund prices through any sort of NAV / closed-end-fund arbitrage.[4]

We also examine whether the data contain evidence of trend-following behavior. Evidence of trend-following has been widely found in flow data (see, for example, Stulz (2001) and Froot, O'Connell, Seasholes (2000)), and has been widely modeled in recent behavioral models. Our tests for trend following are distinguished in that we examine responses to *relative,* not absolute, increases in price. For example, we examine the behavior of international investors when the relative value of their foreign shares increases, *holding constant* the associated closed-end fund prices.[5] Surprisingly, we find that while the data show strong trend following subsequent to an absolute price increase, there is strong evidence of trend reversing subsequent to a relative price increase.

The rest of the paper is structured as follows. Section I describes the data, Section II lays out the econometric tests, Section III presents the results, and Section IV concludes.

[4] Klibanoff, Lamont and Wizman (1998) find that the elasticity of price with respect to net asset value varies with the importance of salient news events pertaining to such changes, which might be an additional source of risk here.

[5] Barberis and Shleifer (2001) focus on the implications of trend-following based on relative prices.

I. Data

A. Portfolio Flow Data

Our cross-border portfolio flow data come from State Street Corporation (SSC). SSC is the largest US master trust bank, the largest US mutual fund custodian (nearly 40% of the industry's funds are under custody there), and one of the world's largest global custodians. It has approximately $7 trillion of securities under custody. SSC records all transactions in these instruments, including cash, underlying securities, and derivatives wherever they are held.

From this database, we distinguish cross-border equity transactions by observing the currency in which equity transactions are settled. For example, equity transactions that settle in Thai baht are defined to encompass purchases and sales of Thai equities. To produce the data for cross-border Thai flows, all transactions in SSC's universe of transactions that settle in baht, were used, removing from them any transactions initiated by Thai investors. Our measure of cross-border flows is therefore that of transactions by non-local SSC clients in local equity securities.

These flow data appear to be representative of *total* cross-border flows country by country, in that they are highly correlated with total foreign net equity inflows in those countries where such measures are available. However, for the purposes of this paper, we prefer to interpret the SSC flows as representing the demands of institutional investors, rather than as a proxy for total foreign demand for a country's shares. For a more complete description of the properties of the data, see Froot, O'Connell, and Seasholes (2001).

The data allow us to identify cross-border flows for 25 countries (of which eight are developed and 17 are emerging markets) for which we have weekly closed-end country fund data.[6] Our sample period is August 1, 1994 through December 24, 1998.

We use net flows into each country, computed as the difference between gross purchases and sales on a weekly basis. To scale the flows, denoted by $f_{i,t}$, we divide by local market capitalization, $m_{i,t}$, so scaled flows are denoted by $F_{i,t} = f_{i,t} / m_{i,t}$. To measure equity-market capitalization, we use the capitalization of the MSCI index for all countries (except Zimbabwe, for which we employ a broad market index). Daily currency prices against the US dollar use WM/Reuters rates from Datastream.

B. Country Closed-End Fund Data

We collected data on 39 closed-end country funds, encompassing the same 25 countries. The data come from CDA Wiesenberger's Closed-End Fund database. We selected only those funds that trade on the NYSE and/or AMEX. The database includes funds that failed, and therefore is not subject to survivorship bias. Discounts for each fund are computed as the natural logarithm of the fund's net asset value (NAV) divided by its price, $D_{it} = \ln(N_{it} / P_{it})$. Since there are 39 funds, and 230 weeks during our sample period, there are a total of 8,957 fund-weeks (one fund, the Fidelity Advisor Korea Fund, has a later start date than the others). Of these, we have 8,955 fund-weeks of data and two missing observations. These missing data points correspond to the ROC Taiwan Fund's NAVs for the last week in January 1998, and the first week in February 1998. The average discount over all fund weeks is 7.01%, and the annualized standard deviation of the discount over fund weeks is 17.08%.

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[6] A complete list of the funds from Developed and Emerging markets is in the Appendix.

C. TAQ Flows Data

In addition to the cross-border flows into the assets that comprise the funds' NAVs, we control for flows into the fund shares themselves. Since all of our funds are traded on the NYSE and AMEX, we can use the NYSE's Transactions and Quotes (TAQ) database to construct a measure of institutional flows. The TAQ data is trade-by-trade data which records transactions prices and quantities, but does not include any "buy" or a "sell" classification. For all trades conducted on the NYSE and AMEX in our closed-end funds, we extract trade prices, number of shares, and innermost prevailing bid/ask quotes.

To classify the direction of each trade, we use a matching algorithm suggested by Lee and Ready (1991). This algorithm looks at the transaction price relative to lagged quotes to determine whether a transaction is a buy or sell. The analysis in Lee and Radhakrishna (2000) evaluates the algorithm's effectiveness, using a sample of buy-sell classified trades obtained from the NYSE. They find the algorithm to be 93% effective. In particular, its accuracy is highest (at 98%) when trade-to-quote matching (rather trade-to-trade matching) can be accomplished, lower (at 76%) for those trades that have to be classified using a tick test, and lowest (at 60%) for those trades classified using a zero-tick test. We eliminate this last source of variability in our data by deleting those trades for which a zero-tick test is required. Use of this trade-to-quote matching algorithm allows us to classify the vast majority (e.g., 87% in the case of the Argentina Fund) of the total trades into buys or sells.

After classifying trades on the basis of direction, we attempt to separate trades generated by institutions from those generated by individuals. To identify institutional trades, we impose a minimum dollar value transaction size. Lee and Radhakrishna (2000) find that a cut-off value of $20,000 for small stocks is most effective in capturing institutional investor flow, as 84% of individual investor trades are found to be below this dollar value, and 67% of institutional investor trades are found to be greater than $10,000 in magnitude. We therefore use $20,000 as the minimum dollar value transaction size for institutional trades. To identify individual retail trades, we use a maximum trade size of $2,500. Lee and Radhakrishna find this level to be most effective in capturing individual investor trades. We consolidate our buy-sell-classified, investor-group-separated trades into daily and weekly flows (henceforth, TAQ flows, either institutional or individual). In the tests below, we are agnostic about whether institutional or individual demand is the correct control, and we find little evidence in support of one versus the other.

Finally, it is useful to normalize the TAQ flows so that they are comparable both cross-sectionally and with the SSC flows. To do this, we first normalize TAQ flows by dividing by fund market capitalization. The flows are then cumulated to form weekly observations. To make the TAQ and SSC flows comparable across funds, we further normalize the TAQ flows by multiplying them by the relative standard deviations of the flows on a fund-by-fund basis, $\sigma_{SSBi} / \sigma_{TAQi}$ for each fund *i*. As can be seen from Tables I and II, the variability of the TAQ flows as a percentage of market capitalization is much greater than that for the SSC flows. This may reflect the fact that we observe essentially all institutional turnover in the closed-end funds, whereas the SSC contain only a fraction of institutional turnover in local countries.

II. Econometric Models and Tests

In order to analyze questions about price pressure and information, we use a vector error correction model (VECM), along the lines suggested by Engle and Granger (1987). The reasoning is as follows. First, we wish to allow for the possibility that both cross-border flows and TAQ institutional flows are endogenous, as they are likely to be functions of one another and of prices. This is consistent with a VAR or VECM system.

Second, a simple vector autoregression of prices, NAVs, and flows is not appropriate, given that prices and NAVs are linked. While, it is natural to think of both the prices and NAVs of closed-end funds as being nonstationary, the deviation between prices and NAVs (i.e., the discount) is stationary. Given this, we need to keep track of the discount in any VAR, since expected future changes in prices and flows may be importantly affected by the current size of the discount. And clearly, the size of the discount will be correlated with past changes in prices and NAVs.

Our VECM setup is a system of four endogenous variables: log changes in fund NAVs (ΔN), log changes in fund prices (ΔP), SSC flows *(F)*, and fund flows *(T)*. For fund flows, we use either definition of TAQ trades (institutional or retail) as controls. In some of the tests, however, we have reduced the number of endogenous variables to three, replacing log changes in NAVs and prices with the difference between them, the log change in the discount ($\Delta D = \Delta N - \Delta P$).

The 3-equation VECM uses

$$y_{it} = \begin{bmatrix} \Delta D_{it} \\ F_{it} \\ T_{it} \end{bmatrix} \qquad (1)$$

where

$$y_{it} = \Gamma_\alpha + \Gamma_D D_{t-1} + \Gamma(L) y_{it-1} + \Gamma_x x_{it} + \varepsilon_{it},$$

$$\Gamma_i = \begin{bmatrix} \delta_i \\ \phi_i \\ \tau_i \end{bmatrix} \; i = \alpha, D, \quad \Gamma(L) = \begin{bmatrix} \delta_{\Delta D}(L) & \delta_F(L) & \delta_T(L) \\ \phi_{\Delta D}(L) & \phi_F(L) & \phi_T(L) \\ \tau_{\Delta D}(L) & \tau_F(L) & \tau_T(L) \end{bmatrix}, \quad \Gamma_x = \begin{bmatrix} \delta_{us} \\ \phi_{us} \\ \tau_{us} \end{bmatrix}.$$

The coefficient matrix $\Gamma(L)$ is a 3x(3p) matrix of coefficients, where L is the lag operator, p is the maximum lag length, and Γ_x is a 3x2 matrix of coefficients. The vector x is comprised of regressors that have been shown to be important in determining closed-end fund and related discounts. Specifically, we use contemporaneous US index returns.[7] We treat such index changes as exogenous with respect to discounts and flows. However, such an exogeneity assumption could be problematic, since cross-border flows may be simultaneously determined by NAV and price changes. Thus, in some of the specifications below, we omit the index return term.[8]

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[7] See Bodurtha, Kim, and Lee (1995) and Hardouvelis, LaPorta, and Wizman, (1994) for evidence on how discounts are positively correlated with local markets and negatively correlated with the US market.

[8] We have tried several ways of estimating these equations, including and excluding the S&P returns. Inclusion makes relatively little difference in the coefficients or the standard errors (the future S&P return is essentially uncorrelated with the RHS regressors), though it does make sense to ask flows to explain returns on closed-end funds in excess of the market. Another way to structure the VECM is to replace the closed-end fund returns with returns in excess of the market.

As a way of presenting cross sectional information, we constrain the coefficient estimates to be the same for all country funds in each region (defined below). We remove fund-specific means before estimation, thus allowing for fixed effects. We then run the VECM using OLS equation-by-equation for our unbalanced panels. We correct for the possibility of heteroskedasticity as well as own-fund autocorrelation and cross-fund correlation using a Newey-West method-of-moment covariance matrix.

A. Trend Chasing Behavior

We will be interested in investigating several aspects of the system above in addition to those bearing directly on the price-pressure and information hypotheses. First, we are interested in the trend-chasing behavior of flows. Previous work has found that flows chase trends in that they respond positively to past returns over and above any persistence in flows. Such a measure would seem important for behavioral models of asset prices, such as Hong and Stein (2000) and Barberis and Shleifer (2000), where such behavior plays an important role in determining equilibrium price dynamics. Empirical evidence in Froot, O'Connell, and Seasholes (2001) suggests that trend chasing in institutional flows is statistically significant, although economically small. However, the problem with such estimates is that they cannot separate how much follow on trading results from an improvement in fundamentals versus an improvement in sentiment. This distinction is critical for Barberis and Shleifer (2000), who posit that flows chase the return component due to sentiment changes. Here we can ask whether there is evidence of trend chasing when returns are measured as deviations from fundamentals (i.e., as a change in the discount), or as changes in sentiment.

Note that trend chasing in cross-border flows can be interpreted in more than one way in the equations above. One interpretation is that, all else equal, a *higher* closed-end fund discount should be associated with greater future cross-border inflows. (For the TAQ flows, trend chasing would imply that a higher discount should be associated with *lower* future TAQ inflows.) This interpretation is probably closest to that in Barberis and Shleifer (2000), in so far as a higher discount implies that the price of equities in the foreign country is *relatively* high. In terms of the coefficients specified above, this would lead us to expect $\phi_D > 0$ in the cross-border flow equation and $\tau_D < 0$ in the TAQ flow equation.

Of course, this is only a partial interpretation of trend chasing. Since the ϕ_D and τ_D coefficients assume that current and recent lagged *changes* in NAVs and prices are held fixed, it picks up trend following only at low frequencies, i.e., responses to changes in the discount that emerge prior to when we began conditioning on past changes in NAVs and prices.

What about trend chasing in response to more recent changes in the discount? To get the total effect of a recent change, we must sum the error-correction coefficient along with the lag coefficients. If, for example, we consider the total impact of an increase in the discount in the last week, the appropriate coefficient to apply is the sum of the coefficient on the discount plus that on the lagged change in the discount, $\phi_D + \phi_{\Delta D}(1)$ in the cross-border flow equation ($\tau_D + \tau_{\Delta D}(1)$ in the closed-end fund flow equation). Similarly, the impact of a unit change over the last *p* weeks is given by $\phi_D + \sum_{i=1}^{p} \phi_{\Delta D}(i)$ for the cross-border flow equation ($\tau_D + \sum_{i=1}^{p} \tau_{\Delta D}(i)$ in the closed-end fund equation). If these sums are positive in the cross-border flow equation (negative in the TAQ equation), then there is evidence of trend following at shorter horizons. If, however, the signs go the other way, then it suggests that flows are trend-reversing, or "stabilizing." For example, if an increase in the discount leads to fewer cross-border inflows and greater closed-end fund inflows, then there is no trend chasing; the flows act as if to discipline discounts and help stabilize their values.

B. Flow Persistence

A second issue of interest, in addition to trend chasing, is the persistence of the two sources of flow into NAV and price.[9] Specifically, we can ask whether an inflow into the foreign equity market is persistent, and whether that persistence depends on flows into the closed-end fund shares as well as flows into the foreign equity market. If there is persistence and the fund and underlying assets act as complements in portfolios, then recent flows into either the local market or into the closed-end fund should forecast future flows into both. If there is persistence and the fund and underlying assets behave more as substitutes in investor portfolios, then an inflow into the local market should forecast both further inflows into the local market and *outflows* from the closed-end fund. This means that we are interested in the sign and significance of the coefficients $\phi_F(L)$, $\phi_T(L)$ and $\tau_F(L)$, $\tau_T(L)$ in the cross-border flow and closed-end fund flow equations above.

C. Price Pressure Versus Information

The third area of investigation concerns the source of forecasting power of both cross-border and closed-end fund flows for future returns. If flows forecast returns only because of future price impacts associated with expected follow-on flows, we say that price pressure – not information – is temporarily driving up prices. Under this scenario, we would expect cross-border inflows to forecast NAV changes and closed-end fund inflows to forecast fund price changes. Since we are holding constant the closed-end fund flows, we would not expect cross-border flows to forecast future closed-end fund price changes. Similarly, we would expect closed-end fund inflows to forecast future returns in closed-end fund prices, but not returns in the underlying local markets. These statements imply that we interpret the price pressure hypothesis as saying $\delta_F(L) > 0$ and $\delta_T(L) < 0$.

Under the information story, of course, cross-border flows forecast changes in fundamentals, and not simply further price pressure. As a result, we should see that these cross-border flows forecast changes in NAVs and closed-end fund prices equally well. Similarly, any forecasting power of closed-end fund flows for prices should also be reflected in forecasting power for NAVs, under the information hypothesis applied to closed-end fund flows. Thus, the information hypothesis implies that $\delta_F(L) = 0$ and $\delta_T(L) = 0$.

Note that our null hypothesis – that the flows are noise and therefore unrelated to future changes in NAVs and prices – also implies $\delta_F(L) = 0$ and $\delta_T(L) = 0$. However, we can split the first equation, the change in the discount, ΔD, into its two constituent equations, changes in NAVs, ΔN, and changes in closed-end fund prices, ΔP. Specifically, the 4-equation VECM is:

[9] For evidence on the persistence of the flows of institutional investors, see Froot, O'Connell, and Seasholes (2001).

$$y_{it} = \begin{bmatrix} \Delta N_{it} \\ \Delta P_{it} \\ F_{it} \\ T_{it} \end{bmatrix} \qquad (2)$$

where

$$y_{it} = \Gamma_\alpha + \Gamma_D D_{t-1} + \Gamma(L) y_{it-1} + \Gamma_x x_{it} + \varepsilon_{it},$$

$$\Gamma_i = \begin{bmatrix} \eta_i \\ \rho_i \\ \phi_i \\ \tau_i \end{bmatrix} \; i = \alpha, D, \;\; \Gamma(L) = \begin{bmatrix} \eta_{\Delta N}(L) & \eta_{\Delta P}(L) & \eta_F(L) & \eta_T(L) \\ \rho_{\Delta N}(L) & \rho_{\Delta P}(L) & \rho_F(L) & \rho_T(L) \\ \phi_{\Delta N}(L) & \phi_{\Delta P}(L) & \phi_F(L) & \phi_T(L) \\ \tau_{\Delta N}(L) & \tau_{\Delta P}(L) & \tau_F(L) & \tau_T(L) \end{bmatrix}, \;\; \Gamma_x = \begin{bmatrix} \eta_{us} \\ \rho_{us} \\ \phi_{us} \\ \tau_{us} \end{bmatrix}.$$

The coefficient matrix $\Gamma(L)$ is now a 4x(4*p*) matrix of coefficients, and Γ_x is now a 4x1 matrix of coefficients. Everything else is the same as in the 3-equation system above.

Under the information hypothesis we have that $\eta_F(L) = \rho_F(L) > 0$ if there is information in the cross-border flows, and $\eta_T(L) = \rho_T(L) > 0$ if there is information in the closed-end fund flows. Thus, if we fail to reject $\delta_F(L) = 0$ and $\delta_T(L) = 0$ in the three equation system, we can use the four equation system to distinguish between the null and information hypotheses.

Remember our caveat here, however. If there are unobserved sources of closed-end fund price pressure that are correlated with cross-border flows but not correlated with closed-end fund flows, then our ability to distinguish between the price pressure and information hypotheses is impaired. To take an example, suppose that underlying sentiment drives cross-border flows, but we fail to pick it up in TAQ flows. In that case both NAV and price would increase subsequent to an increase in cross-border flows, but the cause would not be information, but instead price pressure / sentiment.

III. Estimates and Interpretations of the Results

A. Unit Root Tests

Before running the VECM, we perform the usual Dickey Fuller unit root tests to see that prices and NAVs appear non-stationary while discounts appear stationary. In addition, we test the SSC and TAQ cumulated net flows for the presence of unit roots.[10]

Table IV presents the results and shows that, as expected, we cannot reject the null unit-root hypothesis in prices and NAVs. Specifically, we find that across the 39 funds, we can reject the unit root hypothesis only once in 78 tests at the 5% level of significance. Aggregation across funds does little to change the results. As expected, this is not the case for the closed-end fund discounts. Across the 39 funds, we reject the null hypothesis of a unit root in discounts in 27 funds at the 10% level and 23 funds at the 5% level. Discounts are pretty clearly stationary, even in these relatively short time-series samples.[11]

As for the flows, Table V shows that we only reject the presence of a unit root in either cumulated SSC flows or cumulated TAQ flows once in 50 tests at the 5% level of significance. Cumulated flows of both kinds appear non-stationary.

B. VECM Results

Table VI contains our main VECM results. First, the results make clear the strong mean reversion in the discount. Future changes in the discount are predicted negatively by past changes, but in addition, the level of the discount matters very significantly. Indeed, the coefficient estimates suggest that a 1% increase in the discount in the last week alone results in a one-week-ahead expected return of –20.4bp from the lagged discount change plus a –3.1bp expected return for each 1% deviation of the discount from zero. In addition to this, the higher-order coefficients δ_{D2} and δ_{D3} are both negative, though only the first is statistically significant. When we look at the four-variable system in Tables IX and X, we can see that much of the transitory deviation in closed-end fund discounts comes from reversion in price, not in NAV. This is similar to the findings of Hardouvelis, LaPorta, and Wizman (1994), and Frankel and Schmukler (2000).

Second is the question of how the discount affects future changes in cross-border and closed-end fund flows. Tables VII and VIII report estimates of ϕ_D and τ_D, respectively, as –0.63 and –0.29. The first of these implies that an increase of 1% in the discount results in an outflow from the local market equal to 0.62bp of market capitalization over the next week. This negative estimate of ϕ_D says that cross-border flows display low-frequency *trend reversing*, not trend following. This is because an increase in the NAV relative to price results in a future *decline* in flows into the local market. TAQ flows into closed-end funds yield the opposite result. There, an increase in the discount leads to a future decline in flows into the closed-end fund. This is consistent with trend following, in that an increase in the discount (i.e., a decline in the relative price of the closed-end fund) results in an outflow out

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[10] We incorporate a trend and an intercept term in the specification of all the Unit Root tests, as price series would be expected to contain a trend component. Further, we do not use an augmented Dickey-Fuller specification, as inspection of the partial autocorrelation coefficients in the correlograms of all the series under consideration reveals no significant partial autocorrelations past the first lag.

[11] The tests in Table IV confirm the results of Hardouvelis, La Porta and Wizman (1994), who use Stock and Watson (1988) unit root tests.

of the fund. There is only weak evidence, however, in favor of trend following behavior, as the coefficient, τ_D, is only marginally statistically significant.

The finding that the cross-border flows show trend reversing – not trend following – behavior, stands in contrast to that reported by see Froot, O'Connell and Seasholes (2001). The critical difference is that the latter paper measured the response of flows to past *absolute* returns, whereas this paper uses *relative* returns. Given the size, significance and pervasiveness across regions (see Table VII) of the trend reversing effect, it is clear that the distinction between absolute and relative returns has an important impact on the measurement of trend chasing.

Third, *recent* changes in discounts seem, if anything, to provide additional evidence that trend reversing, not trend following prevails with respect to relative returns. To see the impact of the coefficients, suppose that over the last week, the discount has increased by 1%. The expected change in cross-border flows is toward outflow, consistent with trend reversing behavior, with the estimate given by $\phi_D + \phi_{D1} =$ –0.63 –0.37 = –1.00bp of market capitalization (see Table VII), a 2 standard-deviation outflow. This is economically large, given that a 1% discount change is less than a one-standard-deviation move (see Table I above). The trend-reversing behavior in cross-border flows from NAVs *relative* to fundamentals is that much greater when we look at short-term changes in the discount.

As for closed-end fund flows (see Table VIII), the evidence supporting lower-frequency trend following remains weak at shorter horizons. Here, if the discount increases by 1% over the previous week, the total effect on closed-end fund flows is given by $\tau_D + \tau_{D1} =$ –0.29 – 0.34 = –0.63bp. (For closed-end fund flows, negative estimates indicate trend-following behavior.) While the point estimate remains negative, it is too small to register statistical significance.

We can take this investigation one step further with the four-variable system results in Tables XI and XII. In these tables, cross-border flows and closed-end fund flows, respectively, appear driven by past changes in NAV and price, rather than simply by past changes in their difference, the discount. To start, note that Table XI shows that the coefficient on the discount is essentially the same as in the three variable system, with ϕ_D = -0.64. The first lag of the change in the NAV, however is *positive,* ϕ_{N1}= 1.58, so that the total effect of a one-week change in NAV on cross-border flows is ϕ_D + ϕ_{N1}= -0.65 +1.58 = 0.93 > 0. So cross-border flows do appear trend following with respect to recent changes in NAV. Furthermore, notice that the subsequent lag coefficients, ϕ_{N2}, and ϕ_{N3} are negative and quite large at -0.56 and -2.26, respectively. These coefficients mean that three weeks after a 1% increase in the NAV, the effect on cumulative flows is strongly negative (3x(-0.65)+1.58-.56-2.26 = -3.19). Thus, while NAV increases have short-term trend-following effects, this quickly erodes and the longer-term trend reversing effect dominates.

Next, the estimates tell us something about the persistence of the flows after controlling for price changes relative to fundamentals. In the cross-border flow equation (Table VII), the coefficients show strong evidence of long-lasting own persistence, with ϕ_{F1}, ϕ_{F2}, and ϕ_{F3} all strongly statistically positive. In addition, there is some evidence of cross persistence, in that lagged closed-end fund flows are positively correlated with current cross border flows, even after controlling for lagged cross-border flows. However, only the first lag coefficient, ϕ_{T1}, is statistically positive, and its magnitude is relatively small. Nevertheless, this positive cross correlation suggests that the closed-end funds and underlying NAVs behave as complements rather than substitutes in portfolios. This finding is also reflected in the positive correlation between contemporaneous cross-border and closed-end fund flows, shown in Table I.

As for the persistence in closed-end flows, the evidence is in Table VIII. There is only very weak evidence of own-persistence: while all three of the lag coefficients, τ_{T1}, τ_{T2}, and τ_{T3} are positive, none are statistically significant. However, there is no evidence of positive cross-correlation between lagged cross-border flows and current closed-end fund flows. None of the coefficients, τ_{F1}, τ_{F2}, and τ_{F3} are statistically significant.

The finding of own persistence in the cross-border flow measures echoes that found in Froot, O'Connell, and Seasholes (2001). Institutional portfolios appear to have weekly own autocorrelation coefficients of between 0.1 and 0.2, and to have important higher-order positive partial autocorrelations as well.

Finally, we examine the estimates for evidence of the price-pressure vs. information hypotheses. The first thing of importance is in Table VI – the cross-border flows show a slight, short-run ability to anticipate future changes in the discount. So there is some evidence of price pressure. Of the three flow coefficient estimates in that equation, δ_{F1}, δ_{F2}, and δ_{F3}, only the first is statistically positive. Thus, there is a small amount of evidence of some price pressure: flows forecast discounts, though only slightly.

We next turn to evidence of how well cross-border flows forecast NAVs and prices, the components of the discount. To see this, we examine Tables IX and X, which show the sensitivities of future changes in NAV and price, respectively, to the lagged discount, price changes and both sets of flows. In Table IX, the coefficients η_{F1}, η_{F2}, and η_{F3} show the response of future NAVs to lagged flows. Here there is weak evidence that the flows have a large and statistically positive impact on NAVs, at least over the first few weeks. The size of the first coefficient, 0.0012 says that a 10 basis point increase in cross-border inflows results in a 120 basis point NAV increase over the following week. Over the following week, NAV is expected to rise an additional 60 basis points. In the third week, NAV is expected to fall, by 90 basis points. There seems to be information in cross-border flows for NAVs, much of which appears long lasting.

What about the information impact of the cross-border flows on closed-end fund prices? Table X shows that the coefficients ρ_{F1} and ρ_{F2} are both statistically positive, each with point estimates of 0.0008. Hence, a two-week change in flows has roughly the same impact on prices as it does on NAVs. In this sense there is strong support for the information hypothesis.

It is also useful to summarize these results in the form of impulse response functions. The impulse responses from the 3-equation system reported in Tables VI – VIII are shown in Figure 1. The first thing to note is that the impulse response of the discount to a shock to cross-border flows (upper right-hand corner) shows essentially what the coefficients report: that there is only a small discernible positive change in discounts as a result of the cross-border flows.

Figure 2 shows the response of the discount's components – NAV and price – to the same shock to cross-border flows (upper right- and left-hand corners, respectively). These give a different impression than the discount response in Figure 1. Both NAV and price move strongly and positively subsequent to the shock to cross-border inflows. This is strongly in accordance with the information hypothesis. Future prices move virtually as much as future NAVs in response to a cross-border flow shock, though the response of prices is slightly less aggressive than that of NAVs.

The same cannot be said of TAQ flows, shown in Figure 3. It is clear from the figure that the impulse responses of NAVs and prices to TAQ flow shocks show little discernable response. Cross-border flows appear to contain information, while closed-end fund flows appear to have little or no forecasting power.

The results above describe Tables VI through XII, which employ institutional investor TAQ flows. Tables XIII through XIX are analogous, except that they contain retail investor TAQ flows instead. The results and conclusions above are very similar for both definitions of closed-end fund flow. The only meaningful difference is that the individual investor flows show much stronger persistence than do the institutional flows.

IV. Conclusions

This paper reaffirms previous results that cross-border institutional flows are predictive of future local equity market returns. We then go several steps further. First, in view of the extreme persistence of flows, we ask whether the observed predictability is a result of current and future price pressure, or whether it presages an improvement in fundamentals. To address this question, we look at the *relative* return of closed-end fund NAVs in excess of their price traded in New York, i.e., the closed-end fund discount. We do this while controlling for demand effects that may impact the closed-end fund's price.

Our results are the following. First, we find that both cross-border and closed-end flows show considerable persistence (i.e., positive partial autocorrelations), and even a small amount of cross-persistence. The persistence is much more pronounced, however, for the individual closed-end fund flows than for the comparable cross-border institutional flows.

Second, we find that the much-noted trend following behavior of flows seen in absolute returns, disappears once one investigates *relative* returns, where, by 'relative' we mean returns associated with price pressure or sentiment changes, not fundamentals changes. Cross-border flows, which show strong trend following behavior when compared with past absolute returns, show strong trend reversing behavior when relative returns are used. This is in contrast with the result predicted by Barberis and Shleifer (2000), and suggests that cross-border trading decisions have fundamentals in mind. When mean-reverting discounts get unusually large, international investors sell the underlying assets, only to buy them more aggressively when the discounts are small.

For closed-end fund flows, we find a more puzzling picture, though one that tends to rationalize the inefficiencies in closed-end fund prices found by Hardouvelis, LaPorta, and Wizman (1994). Ceteris-paribus, larger closed-end fund discounts (seen over long periods of time) seem to be associated with *outflows* from the funds themselves. Offsetting this somewhat is a shorter-term effect, which says that recent discount increases result in negligible closed-end fund flows.

Third, we find evidence that the predictability for local-market returns in cross-border flows appears mostly to be due to information rather than price pressure: the same predictable component that appears in NAVs appears in closed-end fund prices as well. Since we are controlling for price pressure in the closed-end fund price, we attribute most of the increase in value to a forecasted improvement in fundamentals, given our assumptions. There is some evidence, nevertheless, that NAVs move more than prices subsequent to a cross-border inflow. In this sense we find some evidence to support the existence of price pressure in local markets over very short periods.

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Table I
Descriptive Statistics for Countries

This table presents descriptive statistics at the country level. The sample consists of cross-border equity flows and closed-end country fund NAVs and prices for 39 NYSE and AMEX traded funds from 25 countries from August 1, 1994 to December 24, 1998. The cross-border flow data are derived from proprietary data provided by State Street Corporation (SSC). The first two data columns report the mean and standard deviation of the net amount traded each week divided by the previous week's country MSCI market capitalization, which we report in basis points. The third and fourth data columns report means (μ) and standard deviations (σ) of weighted closed-end fund discounts = ln(NAV/price) (denoted *D*), expressed as percentages, for all the funds pertaining to a country. The weights are derived from the market capitalizations of the funds as reported in CRSP. Columns five, six and seven report the correlations (ρ), in percentage terms, between the SSC net weekly inflow (denoted *F*), the weighted change in the ln(NAV) (denoted ΔN), the weighted change in the ln(price) (denoted ΔP) of all the funds in each country, and the weighted net weekly TAQ Flows (denoted *T)* into all the funds in each country respectively.

Region	μ_F basis points	σ_F basis points	μ_D (%)	σ_D (%)	$\rho_{F,\Delta N}$ (%)	$\rho_{F,\Delta P}$ (%)	$\rho_{F,T}$ (%)
Developed Markets							
Australia	0.33	1.02	18.6	4.7	30.7	29.3	8.1
Austria	0.54	3.40	20.0	4.9	-14.6	-16.1	-9.0
Germany	0.51	1.62	22.1	3.9	10.5	10.1	10.8
Ireland	1.93	3.51	15.4	5.2	-0.5	-0.7	10.6
Italy	0.81	1.93	17.1	4.4	-7.1	-8.1	6.2
Japan	0.40	0.84	-7.9	8.5	10.8	18.7	17.3
Spain	0.20	1.36	18.1	5.6	-9.6	-6.6	5.7
Switzerland	0.58	2.42	16.2	6.4	-15.0	-18.6	6.2
Emerging Markets							
Latin America							
Argentina	0.19	1.15	8.5	11.5	-6.7	15.6	15.4
Brazil	0.52	4.01	12.7	12.0	11.5	12.5	14.2
Chile	0.07	0.22	15.5	7.1	12.1	16.5	-1.0
Mexico	0.38	1.16	13.6	14.2	-7.5	-2.9	15.9
Emerging East Asia							
Indonesia	0.79	1.95	-15.4	22.5	24.2	23.8	3.0
Korea	0.86	2.45	0.2	10.6	2.7	2.7	4.2
Malaysia	0.34	1.68	-6.6	23.3	14.1	17.1	30.2
Philippines	0.93	1.85	16.4	8.3	29.2	32.1	-2.6
Singapore	0.49	1.73	0.0	7.2	3.4	2.8	1.2
Taiwan	0.13	0.35	8.6	13.1	-8.3	-10.6	9.9
Thailand	0.77	2.07	-15.3	31.3	-8.0	-5.4	1.4
Emerging Europe							
Portugal	1.58	4.52	16.2	7.7	-6.3	-7.9	11.4
Turkey	0.57	1.64	0.8	15.7	-20.2	-3.5	-6.8
Other Emerging Markets							
India	0.12	0.51	5.0	12.4	3.8	23.3	13.3
Israel	0.29	1.02	12.8	11.1	15.7	20.8	-8.4
Pakistan	1.06	2.06	15.7	10.8	1.9	10.8	5.6
South Africa	0.58	0.70	21.4	3.2	11.4	13.5	-3.7
Mean	**0.60**	**1.81**	**9.2**	**10.6**	**3.1**	**6.8**	**6.4**

Table II

Descriptive Statistics for Closed-End Country Funds

This table presents descriptive statistics at the level of individual funds. The sample consists of cross-border equity flows and closed-end country fund NAVs and prices for 39 NYSE and AMEX traded funds from 25 countries from August 1, 1994 to December 24, 1998. The flow data are derived from the TAQ database (TAQ), which reports all trades and quotes in each individual stock. The first two data columns report the mean and standard deviation of the net amount traded each week divided by the previous week's fund market capitalization (from CRSP), which is reported in basis points. The third and fourth data columns report means (μ) and standard deviations (σ) of weighted discount = ln(NAV/price) (denoted *D*), expressed as percentages, for all the funds pertaining to a country. The weights are derived from the market capitalization of the funds. Columns five and six report the correlations (ρ), in percent, between the TAQ net weekly *institutional investor* inflow (denoted *T*), the change in ln(NAV) (denoted ΔN) and the change in ln(price) (denoted ΔP) of all the funds in each country, respectively.

	μ_T	σ_T	μ_D	σ_D	$\rho_{T,\Delta N}$	$\rho_{T,\Delta P}$
Regions and Funds	**basis points**	**basis points**	**(%)**	**(%)**	**(%)**	**(%)**
Developed Markets						
First Australia Fund	-6.70	36.07	18.6	4.7	1.6	9.2
Austria Fund	-151.64	113.75	20.0	4.9	34.7	28.6
Germany Fund	-14.67	36.47	17.8	4.0	17.7	26.3
New Germany Fund	-15.67	34.02	23.4	3.9	0.7	13.6
Irish Investment Fund	-1.38	30.72	15.4	5.2	-6.2	-0.4
Italy Fund	-3.97	51.03	17.1	4.4	7.8	10.5
Japan Equity Fund	4.68	47.55	-11.2	8.4	18.0	23.0
Japan OTC Equity Fund	-5.10	34.01	-6.5	9.1	1.1	7.0
Spain Fund	-30.82	60.84	18.1	5.6	-33.1	-34.3
Swiss Helvetia Fund	-10.73	29.55	16.2	6.4	-1.7	2.8
Emerging Markets						
Latin America						
Argentina Fund	3.04	47.35	8.5	11.5	-4.0	17.6
Brazil Fund	-1.85	56.20	12.9	12.0	22.4	37.8
Brazilian Equity Fund	6.29	82.92	11.2	12.1	4.9	9.1
Chile Fund	-5.09	37.06	15.5	7.1	19.4	22.8
Mexico Equity & Income Fund	-3.00	47.70	12.2	15.9	3.5	16.9
Mexico Fund	5.89	46.68	15.0	13.2	-21.2	7.5
Emerging East Asia						
Indonesia Fund	6.29	59.46	-22.9	23.2	2.8	2.9
Jakarta Growth Fund	-0.17	35.53	-8.9	20.9	1.7	2.9
Fidelity Advisor Korea Fund	-12.39	103.58	2.0	9.6	0.1	0.1
Korea Equity Fund	-4.01	53.91	0.2	11.9	-5.4	-3.0
Korea Fund	3.93	64.25	-7.7	8.0	8.3	12.4
Korean Investment Fund	-4.81	66.15	0.3	11.0	13.0	15.8
Malaysia Fund	-18.86	51.42	-6.6	23.3	-13.4	-11.8
First Philippine Fund	-4.68	38.34	16.4	8.3	19.1	19.2
Singapore Fund	-1.58	43.21	0.0	7.2	16.6	19.4
ROC Taiwan Fund	0.44	57.72	8.3	12.8	6.7	6.2
Taiwan Equity Fund	-7.19	68.71	13.4	13.3	-5.0	6.0
Taiwan Fund	6.37	72.24	8.4	15.3	5.3	23.7
Thai Capital Fund	4.52	50.26	-8.9	22.7	-6.3	-5.6
Thai Fund	-1.40	37.81	-15.3	31.3	-2.7	0.7

Table II (continued)

Regions and Funds	μ_T basis points	σ_T basis points	μ_D (%)	σ_D (%)	$\rho_{T,\Delta N}$ (%)	$\rho_{T,\Delta P}$ (%)
Emerging Europe						
Portugal Fund	-4.29	61.92	16.2	7.7	-7.4	-7.5
Turkish Investment Fund	-6.76	64.32	0.8	15.7	-1.0	7.5
Other Emerging Markets						
India Fund	-4.17	47.29	10.5	11.3	6.0	18.0
India Growth Fund	1.29	53.83	1.0	14.5	3.8	13.6
Jardine Fleming India Fund	-0.97	55.56	6.8	11.4	19.7	29.6
Morgan Stanley India Inv. Fund	-8.49	42.23	5.4	13.0	9.4	25.7
First Israel Fund	-5.63	39.14	12.8	11.1	-10.4	-4.7
Pakistan Investment Fund	-11.37	54.40	15.7	10.8	10.0	17.9
Southern Africa Fund	-7.47	50.10	21.4	3.2	19.1	20.1
Mean	**-7.91**	**53.02**	**7.2**	**11.4**	**3.9**	**10.4**

Table III

Descriptive Statistics for Closed-End Country Funds (Contd.)

This table presents descriptive statistics at the level of individual funds. The sample consists of cross-border equity flows and closed-end country fund NAVs and prices for 39 NYSE and AMEX traded funds from 25 countries from August 1, 1994 to December 24, 1998. The flow data are derived from the TAQ database (TAQ), which reports all trades and quotes in each individual stock. The first two data columns report the mean and standard deviation of the net amount traded each week divided by the previous week's fund market capitalization (from CRSP), reported in basis points. The third and fourth data columns report the correlations (ρ), in percentage terms, between the TAQ net weekly *individual investor* inflow (denoted *I*), the change in ln(NAV) (denoted ΔN) and the change in ln(price) (denoted ΔP) of all the funds in each country, respectively.

Regions and Funds	μ_I basis points	σ_I basis points	$\rho_{I,\Delta N}$ (%)	$\rho_{I,\Delta P}$ (%)
Developed Markets				
First Australia Fund	-3.16	38.61	9.26	11.01
Austria Fund	-10.73	54.35	5.07	-0.47
Germany Fund	-1.92	5.17	16.94	14.58
New Germany Fund	-0.57	2.61	-5.30	3.47
Irish Investment Fund	-0.18	13.26	-11.80	-11.14
Italy Fund	0.19	13.71	16.29	17.04
Japan Equity Fund	5.74	91.86	-7.40	-9.11
Japan OTC Equity Fund	-3.59	47.21	7.91	10.78
Spain Fund	-2.46	7.04	3.23	3.27
Swiss Helvetia Fund	0.11	2.87	7.07	11.95
Emerging Markets				
Latin America				
Argentina Fund	-3.57	42.99	1.38	12.63
Brazil Fund	-1.16	16.07	14.57	17.06
Brazilian Equity Fund	-9.91	152.66	16.45	17.18
Chile Fund	-0.30	1.02	59.21	62.94
Mexico Equity & Income Fund	-8.04	94.31	13.27	16.12
Mexico Fund	-2.10	26.38	4.83	10.64
Emerging East Asia				
Indonesia Fund	-9.00	122.69	10.42	13.06
Jakarta Growth Fund	-9.33	120.51	12.21	15.50
Fidelity Advisor Korea Fund	-1.67	33.14	1.08	1.08
Korea Equity Fund	-6.22	87.40	6.29	8.37
Korea Fund	-0.27	5.30	2.14	5.19
Korean Investment Fund	-4.82	54.06	7.03	10.19
Malaysia Fund	-8.87	112.24	13.35	15.31
First Philippine Fund	-4.91	65.49	11.33	13.18
Singapore Fund	-10.22	143.46	7.86	10.84
ROC Taiwan Fund	1.03	18.30	-13.19	-14.50
Taiwan Equity Fund	-1.99	29.49	1.25	7.65
Taiwan Fund	0.04	0.76	-15.17	3.50
Thai Capital Fund	-20.80	294.07	9.53	11.23
Thai Fund	-2.35	24.62	15.65	17.01

Table III (continued)

Regions and Funds	μ_I basis points	σ_I basis points	$\rho_{I,\Delta N}$ (%)	$\rho_{I,\Delta P}$ (%)
Emerging Europe				
Portugal Fund	-1.53	12.82	-4.98	-3.65
Turkish Investment Fund	-8.05	113.37	3.95	14.30
Other Emerging Markets				
India Fund	-1.93	21.51	6.37	13.05
India Growth Fund	-4.19	54.41	7.42	12.21
Jardine Fleming India Fund	-0.63	6.04	18.34	22.70
Morgan Stanley India Inv. Fund	-2.34	27.88	5.67	12.28
First Israel Fund	0.41	12.96	2.63	-0.33
Pakistan Investment Fund	-17.01	246.41	14.71	15.67
Southern Africa Fund	-8.13	120.89	18.35	17.74
Mean	**-4.22**	**59.95**	**7.52**	**10.50**

Table IV

Unit Root Tests for Closed-End Country Funds

This table presents Dickey-Fuller unit root test results for ln(NAV) (first data column, denoted *N*), ln(price) (second data column, denoted *P*) and Discounts = ln(NAV/price) (third data column, denoted *D*) of the closed-end country funds in our dataset. In all cases, the specification is:

$\Delta y_t = \alpha + \mu t + \gamma y_{t-1} + \varepsilon_t$, where *t* is a time trend, and α is the intercept term. We test $H_0 : \hat{\gamma} = 0$, $H_1 : \hat{\gamma} < 0$, and report the t-statistic of $\hat{\gamma}$ in each case. Rejections of the null hypothesis of a unit root at the 5% critical level are identified in **bold**, and rejections at the 10% critical level are identified as underlined. These critical values are taken from MacKinnon (1991).

Regions and Funds	**t ($\hat{\gamma}_N$)**	**t ($\hat{\gamma}_P$)**	**t ($\hat{\gamma}_D$)**
Developed Markets			
First Australia Fund	-1.92	-2.62	**-4.03**
Austria Fund	-2.39	-3.29	**-4.42**
Germany Fund	-3.05	-3.22	**-4.95**
New Germany Fund	-2.38	-2.78	**-4.73**
Irish Investment Fund	-1.96	-2.94	**-5.20**
Italy Fund	-2.64	-2.75	**-7.38**
Japan Equity Fund	-2.07	-3.36	**-4.35**
Japan OTC Equity Fund	-1.62	**-4.11**	**-4.00**
Spain Fund	-3.09	-2.91	**-3.48**
Swiss Helvetia Fund	-2.66	-2.42	**-5.68**
Emerging Markets			
Latin America			
Argentina Fund	-2.25	-2.47	**-5.46**
Brazil Fund	-1.70	-2.41	-2.21
Brazilian Equity Fund	-1.13	-1.66	**-5.42**
Chile Fund	-1.27	-1.16	<u>-3.23</u>
Mexico Equity & Income Fund	-1.49	-1.89	-2.93
Mexico Fund	-2.13	-2.27	**-4.69**
Emerging East Asia			
Indonesia Fund	-1.39	-2.22	-2.19
Jakarta Growth Fund	-1.27	-1.66	-2.29
Fidelity Advisor Korea Fund	-1.57	-2.01	**-3.81**
Korea Equity Fund	-1.80	-2.02	<u>-3.37</u>
Korea Fund	-2.06	-2.57	**-4.48**
Korean Investment Fund	-2.03	-2.47	<u>-3.34</u>
Malaysia Fund	-1.11	-1.23	-2.56
First Philippine Fund	-1.60	-1.74	**-4.30**
Singapore Fund	-1.54	-2.55	**-4.46**
ROC Taiwan Fund	-1.24	-2.38	-2.86
Taiwan Equity Fund	-1.69	-2.78	-2.58
Taiwan Fund	-1.35	-2.36	-2.48
Thai Capital Fund	-2.02	-2.56	**-3.68**
Thai Fund	-1.83	-2.23	**-3.49**
Emerging Europe			
Portugal Fund	-2.07	-2.57	**-3.82**
Turkish Investment Fund	-2.16	-2.47	**-4.57**
Other Emerging Markets			
India Fund	-1.79	-3.33	-2.44
India Growth Fund	-2.01	-3.37	-2.51
Jardine Fleming India Fund	-1.91	-2.59	<u>-3.21</u>
Morgan Stanley India Inv. Fund	-2.06	-2.39	-2.39
First Israel Fund	-2.00	-3.31	**-4.85**
Pakistan Investment Fund	-1.40	-1.24	-2.96
Southern Africa Fund	-1.05	-1.24	**-5.73**

Table V

Unit Root Tests for Flow Series

This table presents Dickey-Fuller unit root test results for the State Street Corporation cumulative flows into the country (first data column, denoted *F*), institutional TAQ weighted cumulative flows in the US into the country funds (second data column, denoted *T*), and individual investor TAQ weighted cumulative flows in the US into the country funds (third data column, denoted *I*), where the weights are derived from the country fund market capitalizations of all the funds in each country. In all cases, the specification is:

$\Delta y_t = \alpha + \mu t + \gamma y_{t-1} + \varepsilon_t$, where *t* is a time trend, and α is the intercept term. We test $H_0 : \hat{\gamma} = 0$, $H_1 : \hat{\gamma} < 0$, and report the t-statistic of $\hat{\gamma}$ in each case. Rejections of the null hypothesis of a unit root at the 5% critical level are identified in **bold**, and rejections at the 10% critical level are identified as <u>underlined</u>. These critical values are taken from MacKinnon (1991).

Region	t ($\hat{\gamma}_F$)	t ($\hat{\gamma}_T$)	t ($\hat{\gamma}_I$)
Developed Markets			
Australia	-0.67	-1.96	-0.25
Austria	2.75	-2.06	-1.39
Germany	-0.84	-0.13	-1.57
Ireland	-1.34	-2.30	1.28
Italy	-1.17	-2.36	1.73
Japan	-0.41	-1.12	-0.47
Spain	-0.94	4.68	-1.53
Switzerland	-0.21	-1.42	-0.64
Emerging Markets			
Latin America			
Argentina	-0.22	-1.47	1.53
Brazil	-0.72	0.52	**3.91**
Chile	0.36	-0.17	**7.67**
Mexico	0.45	**-4.60**	**-5.65**
Emerging East Asia			
Indonesia	-0.12	-1.64	**3.81**
Korea	-1.19	-1.71	<u>3.40</u>
Malaysia	-0.22	-0.46	2.71
Philippines	1.77	-1.81	3.07
Singapore	-1.81	-2.97	2.90
Taiwan	-1.89	-0.79	0.16
Thailand	-1.32	-2.79	2.90
Emerging Europe			
Portugal	-1.62	-1.62	-2.31
Turkey	0.09	-2.21	0.21
Other Emerging Markets			
India	1.34	0.99	2.05
Israel	0.06	-1.07	-0.24
Pakistan	-0.70	0.52	2.66
South Africa	-2.97	0.34	2.73

Table VI
Vector Error-Correction Model Estimates: Discount Equation 1

This table presents results from the first equation of the vector error correction model estimates from a three endogenous variable system: closed-end fund discounts: ln(NAV/price) (D), net weekly flows *(F)*, and net institutional weekly flows into closed-end funds from the TAQ database *(T)*. The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$\Delta D_{it} = \delta_{\alpha} + \delta_D [D_{it-1}] + \delta_{D1}\Delta D_{it-1} + \delta_{D2}\Delta D_{it-2} + \delta_{D3}\Delta D_{it-3} + \delta_{F1}F_{it-1} + \delta_{F2}F_{it-2} + \delta_{F3}F_{it-3}$$
$$+ \delta_{T1}T_{it-1} + \delta_{T2}T_{it-2} + \delta_{T3}T_{it-3} + \delta_{SP}SP_t + \delta_{SP1}SP_{t-1} + \delta_{SP2}SP_{t-2} + \delta_{SP3}SP_{t-3} + \varepsilon_D$$

(p-values below coefficients)

Region	δ_D	δ_{D1}	δ_{D2}	δ_{D3}	δ_{F1}	δ_{F2}	δ_{F3}	δ_{T1}	δ_{T2}	δ_{T3}	R^2 (8783)
All	-0.0310	-0.2049	-0.0501	-0.0167	0.0006	0.0001	-0.0003	0.0000	0.0007	0.0005	0.08
	0.000	*0.000*	*0.060*	*0.399*	*0.060*	*0.832*	*0.311*	*0.921*	*0.010*	*0.080*	
Developed	-0.0970	-0.2381	-0.0721	-0.0627	0.0000	-0.0001	-0.0003	-0.0005	0.0005	-0.0002	0.14
	0.000	*0.000*	*0.055*	*0.030*	*0.900*	*0.873*	*0.279*	*0.096*	*0.102*	*0.405*	
Emerging	-0.0272	-0.1967	-0.0456	-0.0075	0.0008	0.0001	-0.0004	0.0001	0.0008	0.0007	0.07
	0.000	*0.000*	*0.123*	*0.735*	*0.043*	*0.818*	*0.392*	*0.710*	*0.036*	*0.047*	
Latin America	-0.0241	-0.3139	-0.1083	-0.0035	-0.0002	-0.0001	-0.0004	0.0003	0.0001	0.0003	0.12
	0.072	*0.000*	*0.027*	*0.952*	*0.479*	*0.931*	*0.410*	*0.604*	*0.894*	*0.530*	
Emerging East Asia	-0.0265	-0.1437	-0.0163	0.0000	0.0019	-0.0005	-0.0003	-0.0001	0.0017	0.0016	0.06
	0.002	*0.002*	*0.691*	*0.999*	*0.012*	*0.670*	*0.798*	*0.890*	*0.007*	*0.017*	
Emerging Europe	-0.0375	-0.3570	-0.1591	-0.0275	0.0001	0.0000	0.0000	0.0000	-0.0003	0.0000	0.15
	0.020	*0.000*	*0.003*	*0.579*	*0.784*	*0.963*	*0.930*	*0.931*	*0.475*	*0.994*	
Other Emerging	-0.0300	-0.2499	-0.0839	-0.0524	0.0007	0.0019	-0.0021	0.0007	0.0012	-0.0009	0.11
	0.022	*0.000*	*0.008*	*0.097*	*0.404*	*0.222*	*0.036*	*0.438*	*0.228*	*0.336*	

Table VII
Vector Error-Correction Model Estimates: Flows Equation 2

This table presents results from the second equation of the vector error correction model estimates from a three endogenous variable system: closed-end fund discounts: ln(NAV/price) (*D*), net weekly flows *(F)*, and net institutional weekly flows into closed-end funds from the TAQ database *(T)*. The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$F_{it} = \phi_\alpha + \phi_D[D_{it-1}] + \phi_{D1}\Delta D_{it-1} + \phi_{D2}\Delta D_{it-2} + \phi_{D3}\Delta D_{it-3} + \phi_{F1}F_{it-1} + \phi_{F2}F_{it-2} + \phi_{F3}F_{it-3}$$
$$+ \phi_{T1}T_{it-1} + \phi_{T2}T_{it-2} + \phi_{T3}T_{it-3} + \phi_{SP}SP_t + \phi_{SP1}SP_{t-1} + \phi_{SP2}SP_{t-2} + \phi_{SP3}SP_{t-3} + \varepsilon_F$$

(p-values below coefficients)

Region	ϕ_D	ϕ_{D1}	ϕ_{D2}	ϕ_{D3}	ϕ_{F1}	ϕ_{F2}	ϕ_{F3}	ϕ_{T1}	ϕ_{T2}	ϕ_{T3}	R^2 (8783)
All	-0.6334	-0.3650	-0.7319	-2.1575	0.1690	0.1169	0.0788	0.0462	-0.0003	-0.0093	0.10
	0.018	*0.749*	*0.596*	*0.072*	*0.000*	*0.000*	*0.000*	*0.007*	*0.988*	*0.594*	
Developed	-0.3501	1.2207	1.2383	-3.1653	0.2450	0.0702	0.0940	-0.0476	-0.0082	0.0248	0.11
	0.567	*0.340*	*0.468*	*0.097*	*0.000*	*0.085*	*0.003*	*0.082*	*0.736*	*0.310*	
Emerging	-0.6354	-0.5862	-1.0151	-1.9734	0.1408	0.1323	0.0736	0.0816	0.0076	-0.0199	0.10
	0.023	*0.650*	*0.515*	*0.140*	*0.000*	*0.000*	*0.005*	*0.000*	*0.716*	*0.354*	
Latin America	-0.4360	-0.9428	-0.4469	-0.1361	0.0253	0.1564	0.0011	0.0784	0.0100	-0.0106	0.10
	0.458	*0.646*	*0.790*	*0.933*	*0.542*	*0.002*	*0.970*	*0.027*	*0.741*	*0.572*	
Emerging East Asia	-0.4473	-1.3928	-1.6541	-3.1674	0.2947	0.0599	0.1034	0.0538	-0.0237	-0.0219	0.17
	0.204	*0.432*	*0.465*	*0.115*	*0.000*	*0.272*	*0.012*	*0.021*	*0.451*	*0.278*	
Emerging Europe	-1.4115	0.9506	0.1010	0.7490	0.0006	0.0976	0.0964	0.1637	0.0567	0.0007	0.06
	0.093	*0.744*	*0.973*	*0.806*	*0.995*	*0.014*	*0.110*	*0.007*	*0.319*	*0.992*	
Other Emerging	-1.1323	0.4569	0.8209	-0.6251	0.1402	0.1456	0.1582	0.0485	0.0868	-0.0356	0.17
	0.000	*0.552*	*0.353*	*0.465*	*0.003*	*0.000*	*0.000*	*0.103*	*0.119*	*0.671*	

Table VIII
Vector Error-Correction Model Estimates: Institutional Investor TAQ Flows Equation 3

This table presents results from the third equation of the vector error correction model estimates from a three endogenous variable system: closed-end fund discounts: ln(NAV/price) (*D*), net weekly flows *(F)*, and net institutional weekly flows into closed-end funds from the TAQ database *(T)*. The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$T_{it} = \tau_{\alpha} + \tau_D[D_{it-1}] + \tau_{D1}\Delta D_{it-1} + \tau_{D2}\Delta D_{it-2} + \tau_{D3}\Delta D_{it-3} + \tau_{F1}F_{it-1} + \tau_{F2}F_{it-2} + \tau_{F3}F_{it-3}$$
$$+ \tau_{T1}T_{it-1} + \tau_{T2}T_{it-2} + \tau_{T3}T_{it-3} + \tau_L L_{it} + \tau_{SP}SP_t + \tau_{SP1}SP_{t-1} + \tau_{SP2}SP_{t-2} + \tau_{SP3}SP_{t-3} + \varepsilon_T$$

(p-values below coefficients)

Region	τ_D	τ_{D1}	τ_{D2}	τ_{D3}	τ_{F1}	τ_{F2}	τ_{F3}	τ_{T1}	τ_{T2}	τ_{T3}	R^2 (8783)
All	-0.2920	-0.3441	0.2323	0.5195	0.0038	0.0135	0.0006	0.0268	0.0072	0.0202	0.01
	0.107	*0.633*	*0.762*	*0.516*	*0.801*	*0.175*	*0.973*	*0.174*	*0.653*	*0.202*	
Developed	1.2630	0.8576	2.8542	4.9974	0.0000	0.0093	-0.0215	0.0222	0.0354	0.0262	0.01
	0.185	*0.420*	*0.053*	*0.240*	*0.998*	*0.513*	*0.260*	*0.209*	*0.025*	*0.341*	
Emerging	-0.3576	-0.6074	-0.2110	-0.2221	0.0049	0.0161	0.0097	0.0279	-0.0016	0.0194	0.01
	0.052	*0.453*	*0.804*	*0.709*	*0.805*	*0.209*	*0.671*	*0.289*	*0.940*	*0.342*	
Latin America	-1.9715	0.2010	3.6412	1.4677	0.0111	-0.0018	0.0080	-0.0655	-0.0242	-0.0410	0.02
	0.000	*0.946*	*0.122*	*0.371*	*0.653*	*0.941*	*0.862*	*0.384*	*0.379*	*0.295*	
Emerging East Asia	0.0257	-0.7410	-0.3989	-0.2956	0.0302	0.0347	-0.0288	0.0819	0.0373	0.0349	0.02
	0.905	*0.442*	*0.734*	*0.717*	*0.257*	*0.143*	*0.172*	*0.001*	*0.177*	*0.112*	
Emerging Europe	-1.1830	-3.6064	-2.0230	-0.0754	-0.0646	-0.0019	0.0627	0.0225	-0.0494	0.0550	-0.01
	0.305	*0.328*	*0.338*	*0.873*	*0.318*	*0.774*	*0.344*	*0.371*	*0.370*	*0.343*	
Other Emerging	-0.6667	0.4136	-0.5526	-0.6121	0.0326	0.0750	-0.0273	0.0541	0.0342	0.0388	0.03
	0.001	*0.652*	*0.422*	*0.350*	*0.385*	*0.106*	*0.505*	*0.502*	*0.574*	*0.432*	

Table IX
Vector Error-Correction Model Estimates: NAV Equation 1

This table presents results from the first equation of the VECM estimates from a four endogenous variable system: ln(NAV (*N*), ln(price) (*P*), net weekly flows *(F)*, and net institutional weekly closed-end fund flows from the TAQ database *(T)*. The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$\Delta N_{it} = \eta_\alpha + \eta_D[D_{it-1}] + \eta_{N1}\Delta N_{it-1} + \eta_{N2}\Delta N_{it-2} + \eta_{N3}\Delta N_{it-3} + \eta_{P1}\Delta P_{it-1} + \eta_{P2}\Delta P_{it-2} + \eta_{P3}\Delta P_{it-3}$$
$$+ \eta_{F1}F_{it-1} + \eta_{F2}F_{it-2} + \eta_{F3}F_{it-3} + \eta_{T1}T_{it-1} + \eta_{T2}T_{it-2} + \eta_{T3}T_{it-3} + \eta_{SP}SP_t + \eta_{SP1}SP_{t-1} + \eta_{SP2}SP_{t-2} + \eta_{SP3}SP_{t-3} + \varepsilon_N$$

(p-values below coefficients)

Region	η_D	η_{N1}	η_{N2}	η_{N3}	η_{P1}	η_{P2}	η_{P3}	η_{F1}	η_{F2}	η_{F3}	η_{T1}	η_{T2}	η_{T3}	R^2 (8780)
All	-0.0137	-0.0611	0.0585	0.0589	0.0116	0.0614	0.0222	0.0012	0.0006	-0.0009	0.0001	0.0001	0.0003	0.11
	0.136	*0.103*	*0.217*	*0.160*	*0.759*	*0.061*	*0.501*	*0.007*	*0.113*	*0.028*	*0.713*	*0.809*	*0.226*	
Developed	-0.0286	-0.1459	0.0384	0.0562	0.0461	0.0033	-0.0370	0.0005	0.0000	-0.0001	-0.0007	0.0000	0.0002	0.16
	0.013	*0.000*	*0.404*	*0.126*	*0.107*	*0.908*	*0.169*	*0.122*	*0.983*	*0.824*	*0.012*	*0.942*	*0.275*	
Emerging	-0.0125	-0.0536	0.0564	0.0568	0.0056	0.0699	0.0314	0.0015	0.0009	-0.0012	0.0004	0.0001	0.0003	0.10
	0.191	*0.199*	*0.280*	*0.217*	*0.896*	*0.061*	*0.404*	*0.012*	*0.099*	*0.028*	*0.226*	*0.823*	*0.359*	
Latin America	-0.0033	-0.0376	0.1116	0.1323	0.0551	-0.0218	-0.0810	0.0005	0.0013	0.0002	0.0012	-0.0008	-0.0001	0.14
	0.896	*0.694*	*0.192*	*0.174*	*0.437*	*0.788*	*0.383*	*0.505*	*0.043*	*0.718*	*0.070*	*0.237*	*0.826*	
Emerging East Asia	-0.0120	-0.0535	0.0673	0.0592	-0.0550	0.0943	0.0706	0.0026	0.0007	-0.0029	0.0001	0.0012	0.0010	0.15
	0.317	*0.313*	*0.353*	*0.319*	*0.373*	*0.077*	*0.160*	*0.015*	*0.600*	*0.003*	*0.797*	*0.064*	*0.030*	
Emerging Europe	-0.0297	-0.1129	0.0540	0.0190	0.0553	0.0174	-0.0497	0.0004	0.0004	0.0001	-0.0002	-0.0009	0.0000	0.06
	0.173	*0.194*	*0.462*	*0.796*	*0.606*	*0.805*	*0.473*	*0.389*	*0.319*	*0.896*	*0.721*	*0.226*	*0.974*	
Other Emerging	-0.0172	0.0079	0.0122	0.0095	0.0871	0.0521	0.0126	0.0013	0.0022	-0.0008	0.0019	-0.0008	-0.0015	0.09
	0.184	*0.844*	*0.785*	*0.807*	*0.006*	*0.077*	*0.693*	*0.139*	*0.054*	*0.397*	*0.068*	*0.359*	*0.200*	

Table X
Vector Error-Correction Model Estimates: Price Equation 2

This table presents results from the second equation of the VECM estimates from a four endogenous variable system: ln(NAV) (*N*), log price *(P)*, net weekly flows *(F)*, and net institutional weekly closed-end fund flows from the TAQ database *(T)*. The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$\Delta P_{it} = \rho_\alpha + \rho_D[D_{it-1}] + \rho_{N1}\Delta N_{it-1} + \rho_{N2}\Delta N_{it-2} + \rho_{N3}\Delta N_{it-3} + \rho_{P1}\Delta P_{it-1} + \rho_{P2}\Delta P_{it-2} + \rho_{P3}\Delta P_{it-3}$$
$$+ \rho_{F1}F_{it-1} + \rho_{F2}F_{it-2} + \rho_{F3}F_{it-3} + \rho_{T1}T_{it-1} + \rho_{T2}T_{it-2} + \rho_{T3}T_{it-3} + \rho_{SP}SP_t + \rho_{SP1}SP_{t-1} + \rho_{SP2}SP_{t-2} + \rho_{SP3}SP_{t-3} + \varepsilon_P$$

(p-values below coefficients)

Region	ρ_D	ρ_{N1}	ρ_{N2}	ρ_{N3}	ρ_{P1}	ρ_{P2}	ρ_{P3}	ρ_{F1}	ρ_{F2}	ρ_{F3}	ρ_{T1}	ρ_{T2}	ρ_{T3}	R^2 (8780)
All	0.0183	0.1383	0.0733	0.0233	-0.2075	-0.0187	-0.0335	0.0008	0.0008	-0.0003	0.0002	-0.0004	0.0001	0.15
	0.061	*0.004*	*0.099*	*0.489*	*0.000*	*0.547*	*0.194*	*0.065*	*0.069*	*0.452*	*0.503*	*0.147*	*0.737*	
Developed	0.0685	0.1369	0.1359	0.0839	-0.1762	-0.0586	-0.1118	0.0005	0.0001	0.0003	-0.0003	-0.0005	0.0006	0.22
	0.000	*0.010*	*0.011*	*0.081*	*0.000*	*0.171*	*0.001*	*0.254*	*0.881*	*0.393*	*0.447*	*0.132*	*0.033*	
Emerging	0.0161	0.1359	0.0647	0.0142	-0.2100	-0.0117	-0.0188	0.0008	0.0010	-0.0006	0.0004	-0.0004	-0.0001	0.14
	0.112	*0.011*	*0.183*	*0.701*	*0.000*	*0.737*	*0.517*	*0.122*	*0.064*	*0.365*	*0.306*	*0.335*	*0.823*	
Latin America	0.0232	0.2064	0.2236	0.1241	-0.2857	-0.1385	-0.0968	0.0008	0.0014	0.0007	0.0012	-0.0008	-0.0004	0.18
	0.379	*0.045*	*0.009*	*0.238*	*0.000*	*0.102*	*0.260*	*0.302*	*0.054*	*0.270*	*0.066*	*0.308*	*0.452*	
Emerging East Asia	0.0166	0.1033	0.0270	-0.0028	-0.2081	0.0219	-0.0082	0.0010	0.0015	-0.0025	0.0003	0.0003	0.0002	0.16
	0.196	*0.149*	*0.684*	*0.954*	*0.001*	*0.626*	*0.825*	*0.309*	*0.190*	*0.020*	*0.649*	*0.606*	*0.762*	
Emerging Europe	0.0079	0.2436	0.2102	0.0584	-0.3013	-0.1453	-0.0652	0.0003	0.0004	0.0001	-0.0002	-0.0006	0.0000	0.15
	0.686	*0.000*	*0.002*	*0.425*	*0.001*	*0.022*	*0.326*	*0.497*	*0.231*	*0.907*	*0.672*	*0.463*	*0.929*	
Other Emerging	0.0121	0.2351	0.0590	0.0026	-0.1764	-0.0452	-0.0546	0.0009	0.0007	0.0015	0.0014	-0.0017	-0.0003	0.10
	0.417	*0.000*	*0.305*	*0.964*	*0.001*	*0.255*	*0.195*	*0.390*	*0.697*	*0.242*	*0.255*	*0.102*	*0.827*	

Table XI
Vector Error-Correction Model Estimates: Flows Equation 3

This table presents results from the third equation of the VECM estimates from a four endogenous variable system: ln(NAV) (*N*), log price *(P)*, net weekly flows *(F)*, and net institutional weekly closed-end fund flows from the TAQ database *(T)*. The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$F_{it} = \phi_{\alpha} + \phi_D[D_{it-1}] + \phi_{N1}\Delta N_{it-1} + \phi_{N2}\Delta N_{it-2} + \phi_{N3}\Delta N_{it-3} + \phi_{P1}\Delta P_{it-1} + \phi_{P2}\Delta P_{it-2} + \phi_{P3}\Delta P_{it-3}$$
$$+ \phi_{F1}F_{it-1} + \phi_{F2}F_{it-2} + \phi_{F3}F_{it-3} + \phi_{T1}T_{it-1} + \phi_{T2}T_{it-2} + \phi_{T3}T_{it-3} + \phi_{SP}SP_t + \phi_{SP1}SP_{t-1} + \phi_{SP2}SP_{t-2} + \phi_{SP3}SP_{t-3} + \varepsilon_F$$

(p-values below coefficients)

Region	ϕ_D	ϕ_{N1}	ϕ_{N2}	ϕ_{N3}	ϕ_{P1}	ϕ_{P2}	ϕ_{P3}	ϕ_{F1}	ϕ_{F2}	ϕ_{F3}	ϕ_{T1}	ϕ_{T2}	ϕ_{T3}	R^2 (8780)
All	-0.6434	1.5838	-0.5637	-2.2617	1.6087	1.1303	2.1530	0.1636	0.1142	0.0764	0.0357	-0.0010	-0.0086	0.10
	0.015	*0.225*	*0.774*	*0.100*	*0.161*	*0.329*	*0.063*	*0.000*	*0.000*	*0.000*	*0.034*	*0.949*	*0.624*	
Developed	-0.3169	6.5803	3.6224	-4.0790	0.6173	-0.5034	2.8975	0.2347	0.0674	0.0933	-0.0574	-0.0072	0.0290	0.12
	0.602	*0.000*	*0.119*	*0.096*	*0.662*	*0.767*	*0.128*	*0.000*	*0.098*	*0.003*	*0.036*	*0.767*	*0.240*	
Emerging	-0.6498	0.9992	-0.9928	-1.9275	1.6959	1.3383	2.0402	0.1360	0.1293	0.0709	0.0707	0.0068	-0.0204	0.11
	0.020	*0.495*	*0.645*	*0.200*	*0.189*	*0.309*	*0.115*	*0.001*	*0.000*	*0.007*	*0.000*	*0.728*	*0.350*	
Latin America	-0.4599	0.8990	-0.7605	-0.6811	1.5326	0.2667	0.0296	0.0212	0.1570	0.0003	0.0715	0.0090	-0.0070	0.10
	0.437	*0.757*	*0.691*	*0.691*	*0.457*	*0.889*	*0.988*	*0.607*	*0.002*	*0.992*	*0.028*	*0.773*	*0.738*	
Emerging East Asia	-0.4794	0.5838	-1.4475	-2.7611	3.3527	2.5652	3.6089	0.2873	0.0525	0.1016	0.0293	-0.0277	-0.0299	0.18
	0.167	*0.755*	*0.637*	*0.206*	*0.076*	*0.166*	*0.059*	*0.000*	*0.341*	*0.013*	*0.147*	*0.279*	*0.112*	
Emerging Europe	-1.4413	-0.3043	-0.9879	-0.7833	-2.9744	-2.3769	-3.8057	0.0017	0.1027	0.1071	0.1712	0.0596	0.0019	0.06
	0.089	*0.923*	*0.736*	*0.819*	*0.394*	*0.532*	*0.244*	*0.986*	*0.013*	*0.078*	*0.006*	*0.301*	*0.980*	
Other Emerging	-1.1050	2.6114	1.0162	0.3418	0.1690	-0.7967	0.8144	0.1316	0.1389	0.1519	0.0343	0.0814	-0.0382	0.18
	0.000	*0.033*	*0.476*	*0.729*	*0.818*	*0.329*	*0.364*	*0.006*	*0.000*	*0.000*	*0.285*	*0.141*	*0.653*	

Table XII
Vector Error-Correction Model Estimates: Institutional Investor TAQ Flows Equation 4

This table presents results from the fourth equation of the VECM estimates from a four endogenous variable system: ln(NAV) (*N*), log price *(P)*, net weekly flows *(F)*, and net institutional weekly closed-end fund flows from the TAQ database *(T)*. The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$T_{it} = \tau_\alpha + \tau_D[D_{it-1}] + \tau_{N1}\Delta N_{it-1} + \tau_{N2}\Delta N_{it-2} + \tau_{N3}\Delta N_{it-3} + \tau_{P1}\Delta P_{it-1} + \tau_{P2}\Delta P_{it-2} + \tau_{P3}\Delta P_{it-3}$$
$$+ \tau_{F1}F_{it-1} + \tau_{F2}F_{it-2} + \tau_{F3}F_{it-3} + \tau_{T1}T_{it-1} + \tau_{T2}T_{it-2} + \tau_{T3}T_{it-3} + \tau_{SP}SP_t + \tau_{SP1}SP_{t-1} + \tau_{SP2}SP_{t-2} + \tau_{SP3}SP_{t-3} + \varepsilon_T$$

(p-values below coefficients)

Region	τ_D	τ_{N1}	τ_{N2}	τ_{N3}	τ_{P1}	τ_{P2}	τ_{P3}	τ_{F1}	τ_{F2}	τ_{F3}	τ_{T1}	τ_{T2}	τ_{T3}	R^2 (8780)
All	-0.2891	0.0879	0.0852	0.2227	0.5638	-0.2964	-0.7244	0.0033	0.0141	0.0011	0.0248	0.0082	0.0217	0.01
	0.113	*0.931*	*0.932*	*0.773*	*0.414*	*0.695*	*0.428*	*0.835*	*0.161*	*0.952*	*0.203*	*0.613*	*0.166*	
Developed	1.2794	3.4219	4.8726	3.9164	-0.0108	-2.1493	-5.3878	-0.0058	0.0079	-0.0212	0.0169	0.0346	0.0300	0.01
	0.183	*0.078*	*0.090*	*0.297*	*0.990*	*0.053*	*0.227*	*0.752*	*0.563*	*0.253*	*0.379*	*0.042*	*0.302*	
Emerging	-0.3546	-0.3626	-0.4520	-0.3475	0.7242	0.0611	0.0889	0.0049	0.0168	0.0102	0.0266	0.0001	0.0202	0.01
	0.055	*0.739*	*0.671*	*0.598*	*0.358*	*0.943*	*0.900*	*0.807*	*0.194*	*0.649*	*0.308*	*0.996*	*0.308*	
Latin America	-1.8479	-2.2436	4.3115	-0.6290	-1.0800	-4.2389	-2.6859	0.0173	0.0050	0.0218	-0.0557	-0.0243	-0.0346	0.03
	0.000	*0.526*	*0.106*	*0.705*	*0.702*	*0.096*	*0.220*	*0.446*	*0.854*	*0.598*	*0.448*	*0.385*	*0.338*	
Emerging East Asia	0.0184	0.1578	-1.0958	0.0942	1.6364	0.0505	0.3767	0.0312	0.0314	-0.0277	0.0727	0.0445	0.0296	0.02
	0.930	*0.906*	*0.453*	*0.909*	*0.103*	*0.966*	*0.688*	*0.306*	*0.198*	*0.196*	*0.003*	*0.099*	*0.158*	
Emerging Europe	-1.1767	-2.6772	-0.8983	-1.4877	4.8612	4.0244	-0.4292	-0.0672	-0.0084	0.0632	0.0203	-0.0519	0.0606	-0.01
	0.302	*0.346*	*0.513*	*0.308*	*0.320*	*0.282*	*0.641*	*0.318*	*0.340*	*0.346*	*0.379*	*0.363*	*0.337*	
Other Emerging	-0.6728	-0.5675	-0.2311	-0.4473	-0.6140	0.6981	0.6840	0.0336	0.0742	-0.0262	0.0593	0.0341	0.0359	0.03
	0.001	*0.731*	*0.849*	*0.719*	*0.447*	*0.335*	*0.343*	*0.364*	*0.107*	*0.526*	*0.431*	*0.569*	*0.472*	

Table XIII
Vector Error-Correction Model Estimates: Discount Equation 1

This table presents results from the first equation of the vector error correction model estimates from a three endogenous variable system: closed-end fund discounts: ln(NAV/price) (*D*), net weekly flows *(F)*, and net individual investor weekly flows into closed-end funds from the TAQ database (I). The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$\Delta D_{it} = \delta_\alpha + \delta_D[D_{it-1}] + \delta_{D1}\Delta D_{it-1} + \delta_{D2}\Delta D_{it-2} + \delta_{D3}\Delta D_{it-3} + \delta_{F1}F_{it-1} + \delta_{F2}F_{it-2} + \delta_{F3}F_{it-3}$$
$$+ \delta_{I1}I_{it-1} + \delta_{I2}I_{it-2} + \delta_{I3}I_{it-3} + \delta_{SP}SP_t + \delta_{SP1}SP_{t-1} + \delta_{SP2}SP_{t-2} + \delta_{SP3}SP_{t-3} + \varepsilon_D$$

(*p-values below coefficients*)

Region	δ_D	δ_{D1}	δ_{D2}	δ_{D3}	δ_{F1}	δ_{F2}	δ_{F3}	δ_{I1}	δ_{I2}	δ_{I3}	R^2 (8783)
All	-0.0320	-0.2059	-0.0563	-0.0178	0.0006	0.0001	-0.0003	-0.0004	0.0002	0.0008	0.08
	0.000	*0.000*	*0.029*	*0.357*	*0.056*	*0.764*	*0.362*	*0.376*	*0.728*	*0.030*	
Developed	-0.0983	-0.2430	-0.0833	-0.0611	-0.0001	-0.0001	-0.0003	-0.0009	-0.0002	0.0005	0.15
	0.000	*0.000*	*0.027*	*0.035*	*0.727*	*0.855*	*0.312*	*0.003*	*0.569*	*0.143*	
Emerging	-0.0287	-0.1970	-0.0501	-0.0089	0.0008	0.0002	-0.0004	-0.0002	0.0002	0.0008	0.07
	0.000	*0.000*	*0.079*	*0.680*	*0.033*	*0.744*	*0.410*	*0.683*	*0.700*	*0.075*	
Latin America	-0.0304	-0.3229	-0.1091	-0.0096	-0.0001	0.0001	-0.0002	-0.0008	0.0002	-0.0002	0.12
	0.020	*0.000*	*0.024*	*0.863*	*0.674*	*0.924*	*0.561*	*0.266*	*0.739*	*0.695*	
Emerging East Asia	-0.0313	-0.1373	-0.0225	-0.0030	0.0018	-0.0005	-0.0002	0.0000	0.0005	0.0017	0.05
	0.000	*0.002*	*0.560*	*0.918*	*0.019*	*0.660*	*0.850*	*0.994*	*0.673*	*0.044*	
Emerging Europe	-0.0351	-0.3742	-0.1828	-0.0262	0.0000	0.0000	0.0000	-0.0006	-0.0004	0.0013	0.16
	0.034	*0.000*	*0.001*	*0.599*	*0.962*	*0.931*	*0.942*	*0.298*	*0.476*	*0.030*	
Other Emerging	-0.0315	-0.2506	-0.0945	-0.0514	0.0006	0.0020	-0.0020	0.0007	-0.0013	0.0005	0.11
	0.018	*0.000*	*0.003*	*0.107*	*0.457*	*0.193*	*0.043*	*0.591*	*0.260*	*0.622*	

Table XIV
Vector Error-Correction Model Estimates: Flows Equation 2

This table presents results from the second equation of the vector error correction model estimates from a three endogenous variable system: closed-end fund discounts: ln(NAV/price) (*D*), net weekly flows *(F)*, and net individual investor weekly flows into closed-end funds from the TAQ database (I). The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$F_{it} = \phi_\alpha + \phi_D[D_{it-1}] + \phi_{D1}\Delta D_{it-1} + \phi_{D2}\Delta D_{it-2} + \phi_{D3}\Delta D_{it-3} + \phi_{F1}F_{it-1} + \phi_{F2}F_{it-2} + \phi_{F3}F_{it-3}$$
$$+ \phi_{I1}I_{it-1} + \phi_{I2}I_{it-2} + \phi_{I3}I_{it-3} + \phi_{SP}SP_t + \phi_{SP1}SP_{t-1} + \phi_{SP2}SP_{t-2} + \phi_{SP3}SP_{t-3} + \varepsilon_F$$

(p-values below coefficients)

Region	ϕ_D	ϕ_{D1}	ϕ_{D2}	ϕ_{D3}	ϕ_{F1}	ϕ_{F2}	ϕ_{F3}	ϕ_{I1}	ϕ_{I2}	ϕ_{I3}	R^2 (8783)
All	-0.6668	-0.6221	-0.5971	-1.8532	0.1697	0.1162	0.0761	0.0214	0.0180	0.0173	0.10
	0.012	*0.577*	*0.649*	*0.106*	*0.000*	*0.000*	*0.000*	*0.260*	*0.250*	*0.336*	
Developed	-0.3916	2.0242	1.4999	-3.6107	0.2442	0.0670	0.0956	0.0115	-0.0054	-0.0224	0.11
	0.533	*0.118*	*0.383*	*0.058*	*0.000*	*0.102*	*0.002*	*0.581*	*0.842*	*0.323*	
Emerging	-0.7226	-1.0380	-0.9021	-1.4891	0.1412	0.1286	0.0680	0.0309	0.0285	0.0337	0.10
	0.009	*0.406*	*0.539*	*0.239*	*0.000*	*0.000*	*0.011*	*0.204*	*0.126*	*0.140*	
Latin America	-0.3193	-1.2160	-0.2997	0.5567	0.0277	0.1500	-0.0119	0.0586	0.0031	0.0335	0.10
	0.599	*0.565*	*0.869*	*0.719*	*0.499*	*0.002*	*0.730*	*0.146*	*0.900*	*0.510*	
Emerging East Asia	-0.7218	-1.3951	-0.9119	-2.2271	0.2844	0.0547	0.0954	0.0777	0.0484	0.0277	0.18
	0.058	*0.421*	*0.651*	*0.214*	*0.000*	*0.307*	*0.019*	*0.053*	*0.052*	*0.308*	
Emerging Europe	-1.5543	-1.8392	-2.4680	0.3891	0.0197	0.1009	0.0781	-0.0697	0.0077	0.0465	0.04
	0.074	*0.514*	*0.412*	*0.899*	*0.843*	*0.026*	*0.221*	*0.289*	*0.887*	*0.250*	
Other Emerging	-1.2235	0.1943	0.2438	-0.5152	0.1419	0.1438	0.1672	-0.0169	0.0206	0.0409	0.16
	0.000	*0.786*	*0.782*	*0.440*	*0.007*	*0.000*	*0.000*	*0.654*	*0.450*	*0.446*	

Table XV
Vector Error-Correction Model Estimates: Individual Investor TAQ Flows Equation 3

This table presents results from the third equation of the vector error correction model estimates from a three endogenous variable system: closed-end fund discounts: ln(NAV/price) (*D*), net weekly flows *(F)*, and net individual investor weekly flows into closed-end funds from the TAQ database (I). The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$I_{it} = \iota_\alpha + \iota_D[D_{it-1}] + \iota_{D1}\Delta D_{it-1} + \iota_{D2}\Delta D_{it-2} + \iota_{D3}\Delta D_{it-3} + \iota_{F1}F_{it-1} + \iota_{F2}F_{it-2} + \iota_{F3}F_{it-3}$$
$$+ \iota_{I1}I_{it-1} + \iota_{I2}I_{it-2} + \iota_{I3}I_{it-3} + \iota_L L_{it} + \iota_{SP}SP_t + \iota_{SP1}SP_{t-1} + \iota_{SP2}SP_{t-2} + \iota_{SP3}SP_{t-3} + \varepsilon_I$$

(p-values below coefficients)

Region	ι_D	ι_{D1}	ι_{D2}	ι_{D3}	ι_{F1}	ι_{F2}	ι_{F3}	ι_{I1}	ι_{I2}	ι_{I3}	R^2 (8783)
All	-0.0530	0.4475	-0.6372	-1.1355	0.0272	-0.0330	0.0012	0.1307	0.0228	0.0540	0.04
	0.819	*0.360*	*0.457*	*0.414*	*0.151*	*0.174*	*0.933*	*0.013*	*0.008*	*0.054*	
Developed	0.9190	1.2888	-1.2274	-1.0075	0.0553	-0.0238	0.0102	0.0817	0.0340	0.0396	0.01
	0.481	*0.370*	*0.416*	*0.454*	*0.347*	*0.273*	*0.242*	*0.001*	*0.034*	*0.014*	
Emerging	-0.1385	0.3680	-0.4461	-1.0927	0.0152	-0.0388	-0.0037	0.1518	0.0223	0.0637	0.05
	0.555	*0.435*	*0.626*	*0.482*	*0.319*	*0.246*	*0.833*	*0.035*	*0.055*	*0.114*	
Latin America	0.4064	0.3601	0.6838	1.0562	0.0132	-0.0421	0.0034	0.2093	0.0409	0.1345	0.09
	0.494	*0.682*	*0.519*	*0.411*	*0.527*	*0.302*	*0.866*	*0.246*	*0.412*	*0.271*	
Emerging East Asia	-0.0068	0.1245	-0.9812	-1.9419	-0.0011	-0.0816	0.0294	0.1307	0.0147	0.0476	0.04
	0.922	*0.797*	*0.242*	*0.360*	*0.903*	*0.310*	*0.381*	*0.183*	*0.261*	*0.180*	
Emerging Europe	-0.4664	5.3278	5.4669	-1.3534	0.0782	0.0083	-0.0726	0.1300	0.0332	-0.0124	0.02
	0.231	*0.434*	*0.249*	*0.351*	*0.236*	*0.626*	*0.285*	*0.019*	*0.183*	*0.609*	
Other Emerging	-0.2580	0.4979	-0.6672	0.2692	-0.0033	0.0359	-0.0366	0.1242	0.0413	0.0674	0.03
	0.208	*0.350*	*0.358*	*0.349*	*0.760*	*0.327*	*0.327*	*0.266*	*0.217*	*0.305*	

Table XVI
Vector Error-Correction Model Estimates: NAV Equation 1

This table presents results from the first equation of the VECM estimates from a four endogenous variable system: ln(NAV) (*N*), log price *(P)*, net weekly flows *(F)*, and net individual investor weekly closed-end fund flows from the TAQ database (I). The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$\Delta N_{it} = \eta_\alpha + \eta_D[D_{it-1}] + \eta_{N1}\Delta N_{it-1} + \eta_{N2}\Delta N_{it-2} + \eta_{N3}\Delta N_{it-3} + \eta_{P1}\Delta P_{it-1} + \eta_{P2}\Delta P_{it-2} + \eta_{P3}\Delta P_{it-3}$$
$$+ \eta_{F1}F_{it-1} + \eta_{F2}F_{it-2} + \eta_{F3}F_{it-3} + \eta_{I1}I_{it-1} + \eta_{I2}I_{it-2} + \eta_{I3}I_{it-3} + \eta_{SP}SP_t + \eta_{SP1}SP_{t-1} + \eta_{SP2}SP_{t-2} + \eta_{SP3}SP_{t-3} + \varepsilon_N$$

(*p-values below coefficients)*

Region	η_D	η_{N1}	η_{N2}	η_{N3}	η_{P1}	η_{P2}	η_{P3}	η_{F1}	η_{F2}	η_{F3}	η_{I1}	η_{I2}	η_{I3}	R^2 (8780)
All	-0.0143	-0.0597	0.0602	0.0590	0.0099	0.0603	0.0248	0.0012	0.0007	-0.0009	0.0002	0.0000	-0.0001	0.11
	0.119	*0.108*	*0.197*	*0.154*	*0.792*	*0.054*	*0.445*	*0.006*	*0.109*	*0.026*	*0.692*	*0.966*	*0.730*	
Developed	-0.0274	-0.1413	0.0378	0.0544	0.0354	0.0008	-0.0338	0.0005	0.0000	0.0000	0.0001	-0.0001	0.0001	0.15
	0.024	*0.000*	*0.408*	*0.136*	*0.214*	*0.979*	*0.210*	*0.131*	*0.952*	*0.957*	*0.574*	*0.712*	*0.847*	
Emerging	-0.0133	-0.0527	0.0580	0.0570	0.0070	0.0696	0.0343	0.0015	0.0009	-0.0012	0.0002	0.0000	-0.0002	0.10
	0.159	*0.201*	*0.256*	*0.208*	*0.868*	*0.050*	*0.348*	*0.010*	*0.093*	*0.025*	*0.779*	*0.959*	*0.662*	
Latin America	-0.0045	-0.0461	0.1068	0.1342	0.0713	-0.0241	-0.0842	0.0005	0.0012	0.0001	0.0002	-0.0005	0.0003	0.14
	0.857	*0.615*	*0.214*	*0.176*	*0.310*	*0.768*	*0.368*	*0.469*	*0.054*	*0.778*	*0.776*	*0.483*	*0.617*	
Emerging East Asia	-0.0136	-0.0486	0.0725	0.0632	-0.0599	0.0999	0.0832	0.0026	0.0007	-0.0030	0.0005	0.0004	-0.0006	0.15
	0.286	*0.361*	*0.297*	*0.265*	*0.324*	*0.035*	*0.076*	*0.016*	*0.576*	*0.003*	*0.680*	*0.745*	*0.431*	
Emerging Europe	-0.0295	-0.1154	0.0507	0.0189	0.0618	0.0178	-0.0521	0.0002	0.0004	0.0001	-0.0002	-0.0002	0.0003	0.05
	0.204	*0.198*	*0.499*	*0.802*	*0.587*	*0.809*	*0.456*	*0.658*	*0.377*	*0.762*	*0.727*	*0.758*	*0.493*	
Other Emerging	-0.0177	0.0014	0.0062	0.0162	0.1055	0.0472	0.0121	0.0011	0.0021	-0.0005	-0.0004	0.0013	-0.0023	0.09
	0.145	*0.972*	*0.888*	*0.683*	*0.001*	*0.111*	*0.699*	*0.181*	*0.075*	*0.593*	*0.783*	*0.225*	*0.039*	

Table XVII
Vector Error-Correction Model Estimates: Price Equation 2

This table presents results from the second equation of the VECM estimates from a four endogenous variable system: ln(NAV) (*N*), log price *(P)*, net weekly flows *(F)*, and net individual investor weekly closed-end fund flows from the TAQ database (I). The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$\Delta P_{it} = \rho_\alpha + \rho_D[D_{it-1}] + \rho_{N1}\Delta N_{it-1} + \rho_{N2}\Delta N_{it-2} + \rho_{N3}\Delta N_{it-3} + \rho_{P1}\Delta P_{it-1} + \rho_{P2}\Delta P_{it-2} + \rho_{P3}\Delta P_{it-3}$$
$$+ \rho_{F1}F_{it-1} + \rho_{F2}F_{it-2} + \rho_{F3}F_{it-3} + \rho_{I1}I_{it-1} + \rho_{I2}I_{it-2} + \rho_{I3}I_{it-3} + \rho_{SP}SP_t + \rho_{SP1}SP_{t-1} + \rho_{SP2}SP_{t-2} + \rho_{SP3}SP_{t-3} + \varepsilon_P$$

(p-values below coefficients)

Region	ρ_D	ρ_{N1}	ρ_{N2}	ρ_{N3}	ρ_{P1}	ρ_{P2}	ρ_{P3}	ρ_{F1}	ρ_{F2}	ρ_{F3}	ρ_{I1}	ρ_{I2}	ρ_{I3}	R^2 (8780)
All	0.0182	0.1404	0.0784	0.0242	-0.2111	-0.0266	-0.0312	0.0008	0.0008	-0.0004	0.0006	-0.0001	-0.0007	0.15
	0.063	*0.002*	*0.072*	*0.475*	*0.000*	*0.387*	*0.230*	*0.052*	*0.068*	*0.411*	*0.344*	*0.921*	*0.093*	
Developed	0.0708	0.1457	0.1409	0.0808	-0.1923	-0.0738	-0.1057	0.0006	0.0000	0.0003	0.0009	0.0001	-0.0004	0.22
	0.000	*0.006*	*0.008*	*0.091*	*0.000*	*0.088*	*0.002*	*0.191*	*0.937*	*0.340*	*0.003*	*0.831*	*0.342*	
Emerging	0.0160	0.1367	0.0682	0.0146	-0.2101	-0.0170	-0.0166	0.0009	0.0010	-0.0006	0.0004	-0.0001	-0.0008	0.14
	0.114	*0.007*	*0.149*	*0.695*	*0.000*	*0.621*	*0.572*	*0.096*	*0.060*	*0.352*	*0.576*	*0.884*	*0.136*	
Latin America	0.0269	0.2054	0.2209	0.1295	-0.2771	-0.1418	-0.1072	0.0008	0.0013	0.0006	0.0010	-0.0008	0.0005	0.18
	0.293	*0.035*	*0.011*	*0.224*	*0.000*	*0.098*	*0.212*	*0.307*	*0.087*	*0.383*	*0.275*	*0.455*	*0.582*	
Emerging East Asia	0.0186	0.1040	0.0294	-0.0014	-0.2075	0.0221	0.0021	0.0012	0.0017	-0.0025	0.0003	0.0001	-0.0019	0.17
	0.148	*0.122*	*0.635*	*0.976*	*0.000*	*0.601*	*0.955*	*0.194*	*0.149*	*0.020*	*0.834*	*0.941*	*0.063*	
Emerging Europe	0.0055	0.2550	0.2293	0.0614	-0.3192	-0.1751	-0.0650	0.0002	0.0004	0.0001	0.0004	0.0002	-0.0010	0.15
	0.793	*0.000*	*0.001*	*0.406*	*0.001*	*0.005*	*0.333*	*0.618*	*0.323*	*0.876*	*0.608*	*0.771*	*0.055*	
Other Emerging	0.0126	0.2279	0.0563	0.0084	-0.1597	-0.0622	-0.0521	0.0009	0.0005	0.0018	-0.0007	0.0029	-0.0025	0.10
	0.390	*0.000*	*0.327*	*0.879*	*0.001*	*0.113*	*0.225*	*0.395*	*0.763*	*0.177*	*0.609*	*0.040*	*0.018*	

Table XVIII
Vector Error-Correction Model Estimates: Flows Equation 3

This table presents results from the third equation of the VECM estimates from a four endogenous variable system: ln(NAV) (*N*), log price *(P)*, net weekly flows *(F)*, and net individual investor weekly closed-end fund flows from the TAQ database (I). The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$F_{it} = \phi_\alpha + \phi_D[D_{it-1}] + \phi_{N1}\Delta N_{it-1} + \phi_{N2}\Delta N_{it-2} + \phi_{N3}\Delta N_{it-3} + \phi_{P1}\Delta P_{it-1} + \phi_{P2}\Delta P_{it-2} + \phi_{P3}\Delta P_{it-3}$$
$$+ \phi_{F1}F_{it-1} + \phi_{F2}F_{it-2} + \phi_{F3}F_{it-3} + \phi_{I1}I_{it-1} + \phi_{I2}I_{it-2} + \phi_{I3}I_{it-3} + \phi_{SP}SP_t + \phi_{SP1}SP_{t-1} + \phi_{SP2}SP_{t-2} + \phi_{SP3}SP_{t-3} + \varepsilon_F$$

(p-values below coefficients)

Region	ϕ_D	ϕ_{N1}	ϕ_{N2}	ϕ_{N3}	ϕ_{P1}	ϕ_{P2}	ϕ_{P3}	ϕ_{F1}	ϕ_{F2}	ϕ_{F3}	ϕ_{I1}	ϕ_{I2}	ϕ_{I3}	R^2 (8780)
All	-0.6632	1.4983	-0.4958	-2.0799	1.9136	1.0001	1.8014	0.1634	0.1136	0.0743	0.0133	0.0193	0.0195	0.10
	0.010	*0.241*	*0.796*	*0.123*	*0.088*	*0.357*	*0.097*	*0.000*	*0.000*	*0.001*	*0.461*	*0.200*	*0.262*	
Developed	-0.3697	7.0855	3.6644	-4.3237	-0.3455	-0.7953	3.4730	0.2338	0.0637	0.0953	0.0036	-0.0068	-0.0187	0.11
	0.556	*0.000*	*0.118*	*0.078*	*0.811*	*0.641*	*0.068*	*0.000*	*0.121*	*0.002*	*0.871*	*0.800*	*0.411*	
Emerging	-0.7208	0.8807	-0.9166	-1.6329	2.3023	1.2736	1.4573	0.1348	0.1257	0.0659	0.0220	0.0307	0.0356	0.11
	0.008	*0.534*	*0.662*	*0.263*	*0.065*	*0.296*	*0.223*	*0.001*	*0.000*	*0.014*	*0.334*	*0.086*	*0.106*	
Latin America	-0.3274	1.0877	-0.5800	-0.1624	1.8957	0.1047	-0.6583	0.0221	0.1505	-0.0123	0.0568	0.0018	0.0362	0.10
	0.588	*0.722*	*0.771*	*0.924*	*0.381*	*0.960*	*0.703*	*0.590*	*0.003*	*0.733*	*0.140*	*0.943*	*0.473*	
Emerging East Asia	-0.7148	0.5999	-0.9699	-2.0457	3.2267	1.6266	2.4337	0.2777	0.0485	0.0940	0.0615	0.0535	0.0280	0.19
	0.051	*0.739*	*0.737*	*0.314*	*0.083*	*0.309*	*0.137*	*0.000*	*0.375*	*0.020*	*0.089*	*0.021*	*0.266*	
Emerging Europe	-1.5222	-2.2774	-3.1034	-1.1241	0.9558	0.9316	-2.9951	0.0202	0.1041	0.0860	-0.0652	0.0142	0.0469	0.03
	0.080	*0.461*	*0.307*	*0.749*	*0.796*	*0.808*	*0.353*	*0.841*	*0.025*	*0.181*	*0.337*	*0.791*	*0.247*	
Other Emerging	-1.1855	2.7047	0.6772	0.2612	0.4782	-0.2340	0.6005	0.1325	0.1356	0.1592	-0.0357	0.0233	0.0344	0.17
	0.000	*0.029*	*0.625*	*0.792*	*0.491*	*0.778*	*0.356*	*0.014*	*0.000*	*0.000*	*0.367*	*0.404*	*0.528*	

Table XIX
Vector Error-Correction Model Estimates: Individual Investor TAQ Flows Equation 4

This table presents results from the fourth equation of the VECM estimates from a four endogenous variable system: ln(NAV) (*N*), log price *(P)*, net weekly flows *(F)*, and net individual investor weekly closed-end fund flows from the TAQ database (I). The funds are matched to the flows by the country in which the funds specialize. The number of lags is set to three weeks. Each equation of the system is estimated separately, stacked across each regional group. Coefficients are restricted to be the same across all members of each group, though idiosyncratic intercepts are permitted. The system is estimated using OLS, with standard errors corrected for within fund heteroskedasticity and autocorrelation, and within region cross-fund contemporaneous correlation in the residuals. FX rates for conversion are obtained from WMR/Reuters using Datastream. SP represents returns on the S&P 500 index – contemporaneous and three weekly lags are included, though we do not report these coefficients. We report R^2 (degrees of freedom) in the final column. All data covers the period from August 5, 1994 to December 31, 1998. A complete list of funds, countries and regions is provided in the Appendix.

$$I_{it} = \iota_{\alpha} + \iota_D[D_{it-1}] + \iota_{N1}\Delta N_{it-1} + \iota_{N2}\Delta N_{it-2} + \iota_{N3}\Delta N_{it-3} + \iota_{P1}\Delta P_{it-1} + \iota_{P2}\Delta P_{it-2} + \iota_{P3}\Delta P_{it-3}$$
$$+ \iota_{F1}F_{it-1} + \iota_{F2}F_{it-2} + \iota_{F3}F_{it-3} + \iota_{I1}I_{it-1} + \iota_{I2}I_{it-2} + \iota_{I3}I_{it-3} + \iota_{SP}SP_t + \iota_{SP1}SP_{t-1} + \iota_{SP2}SP_{t-2} + \iota_{SP3}SP_{t-3} + \varepsilon_I$$

(p-values below coefficients)

Region	ι_D	ι_{N1}	ι_{N2}	ι_{N3}	ι_{P1}	ι_{P2}	ι_{P3}	ι_{F1}	ι_{F2}	ι_{F3}	ι_{I1}	ι_{I2}	ι_{I3}	R^2 (8780)
All	-0.0551	0.8475	-1.7844	-0.4908	-0.1952	0.0342	1.3400	0.0285	-0.0321	0.0008	0.1280	0.0283	0.0511	0.04
	0.817	*0.223*	*0.338*	*0.761*	*0.756*	*0.928*	*0.272*	*0.134*	*0.160*	*0.954*	*0.011*	*0.004*	*0.050*	
Developed	0.9008	-0.1597	-2.6153	-1.4979	-1.6991	0.8232	0.8399	0.0595	-0.0211	0.0114	0.0840	0.0355	0.0391	0.01
	0.485	*0.765*	*0.287*	*0.333*	*0.377*	*0.504*	*0.503*	*0.341*	*0.289*	*0.221*	*0.002*	*0.021*	*0.011*	
Emerging	-0.1406	0.8934	-1.5643	-0.3704	0.0026	-0.1298	1.3458	0.0163	-0.0383	-0.0045	0.1475	0.0293	0.0600	0.05
	0.562	*0.270*	*0.425*	*0.835*	*0.996*	*0.761*	*0.310*	*0.256*	*0.228*	*0.804*	*0.034*	*0.039*	*0.113*	
Latin America	0.3440	1.4417	0.0898	4.1293	0.1173	0.2100	0.3871	0.0094	-0.0511	-0.0124	0.2062	0.0450	0.1325	0.09
	0.535	*0.423*	*0.931*	*0.312*	*0.894*	*0.828*	*0.678*	*0.593*	*0.294*	*0.552*	*0.242*	*0.405*	*0.267*	
Emerging East Asia	-0.0003	0.7251	-2.7000	-1.7293	0.4195	-0.2879	1.5181	0.0061	-0.0808	0.0335	0.1216	0.0299	0.0431	0.05
	0.997	*0.542*	*0.272*	*0.388*	*0.482*	*0.613*	*0.369*	*0.543*	*0.306*	*0.364*	*0.168*	*0.187*	*0.175*	
Emerging Europe	-0.4801	6.1723	4.9117	-0.6740	-4.0478	-5.4731	2.4257	0.0756	0.0090	-0.0762	0.1261	0.0341	-0.0134	0.01
	0.245	*0.389*	*0.274*	*0.518*	*0.519*	*0.250*	*0.358*	*0.245*	*0.608*	*0.290*	*0.020*	*0.166*	*0.600*	
Other Emerging	-0.2708	-0.2873	-1.5449	0.3934	-0.7249	0.5115	-0.1621	0.0030	0.0382	-0.0342	0.1306	0.0447	0.0657	0.03
	0.216	*0.502*	*0.301*	*0.408*	*0.321*	*0.397*	*0.474*	*0.791*	*0.319*	*0.334*	*0.263*	*0.225*	*0.303*	

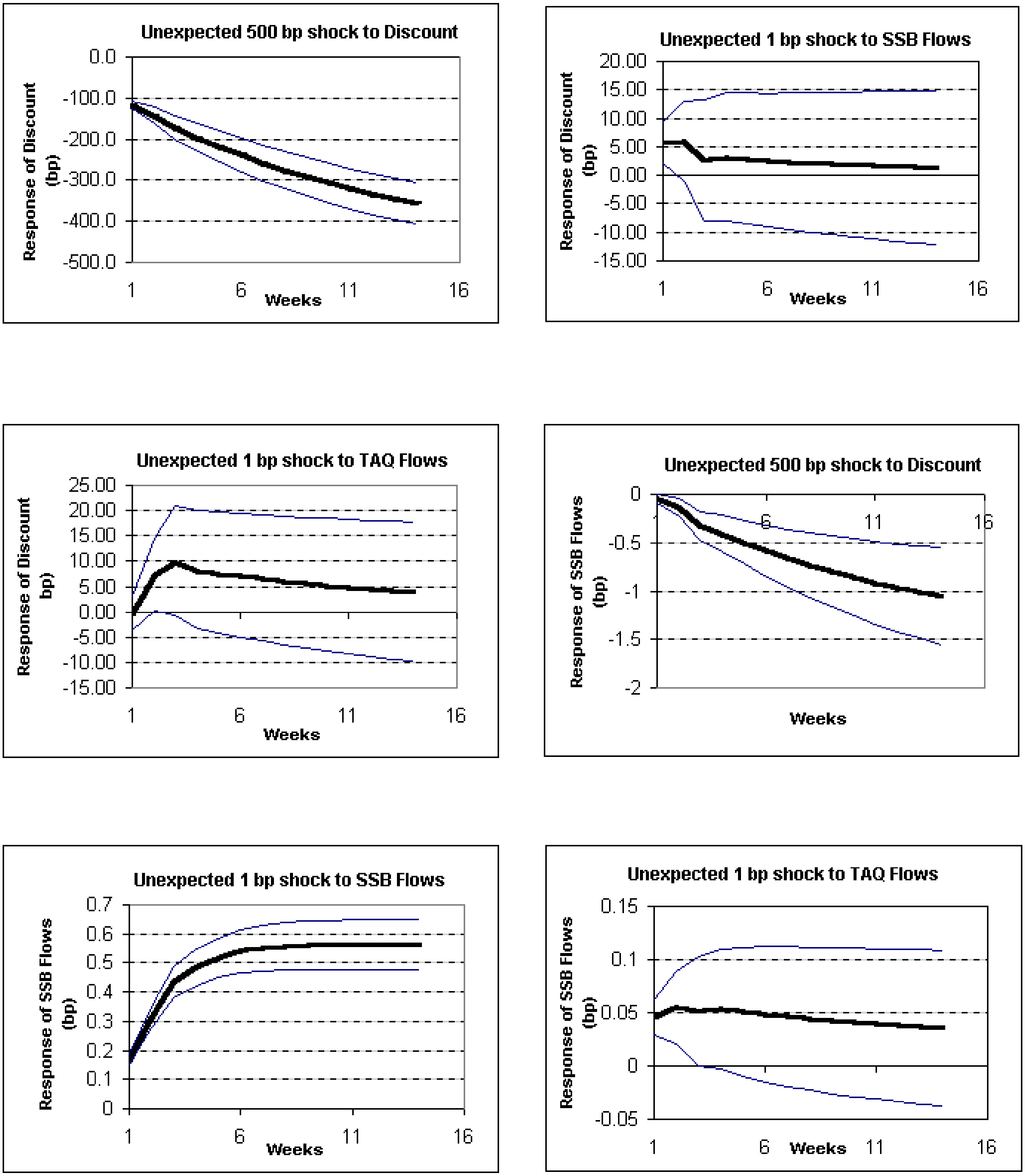

Fig. 1. Impulse response functions: all funds. The cumulative impulse response functions for Discounts and SSC Flows are shown here, and those for the Institutional Investor TAQ Flows on the next page. Parameters are from the VECM as reported in Tables VI, VII and VIII. Each impulse response function is derived by generating an innovation to one of the endogenous variables in the system, while holding the others fixed. The impact of the innovations on the cointegrating vector is kept track of following every period in which the system is shocked. The IRF's are shown with 90% confidence intervals, which are obtained by Monte Carlo simulation. Parameter values are drawn from the asymptotic joint distribution of parameters, and a simulated IRF is computed. The procedure is repeated 1000 times.

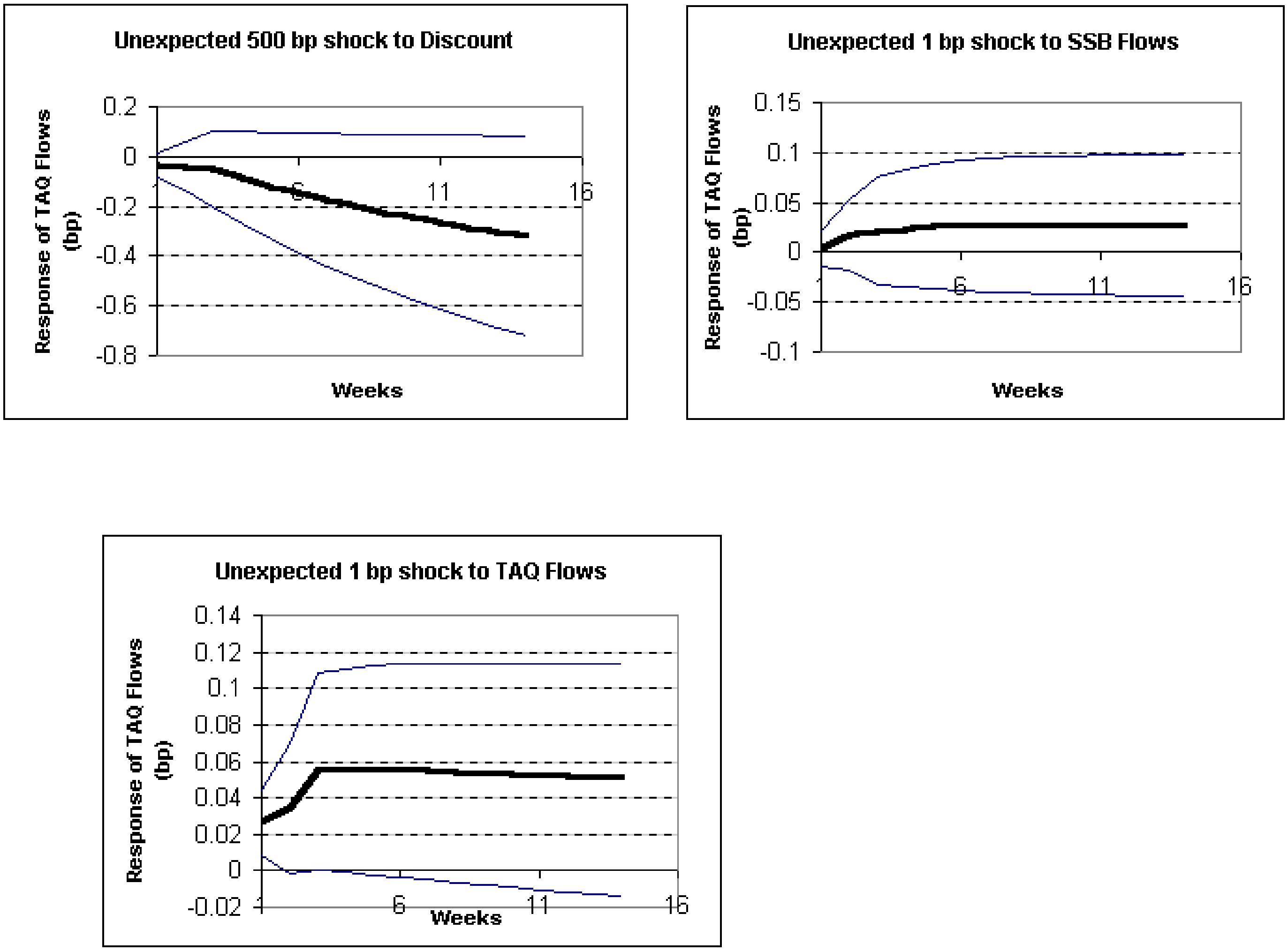

Fig. 1. (continued) Impulse response functions: all funds. The cumulative impulse response functions for the Institutional Investor TAQ Flows are shown here. Parameters are from the VECM as reported in Tables VI, VII and VIII. Each impulse response function is derived by generating an innovation to one of the endogenous variables in the system, while holding the others fixed. The impact of the innovations on the cointegrating vector is kept track of following every period in which the system is shocked. The IRF's are shown with 90% confidence intervals, which are obtained by Monte Carlo simulation. Parameter values are drawn from the asymptotic joint distribution of parameters, and a simulated IRF is computed. The procedure is repeated 1000 times.

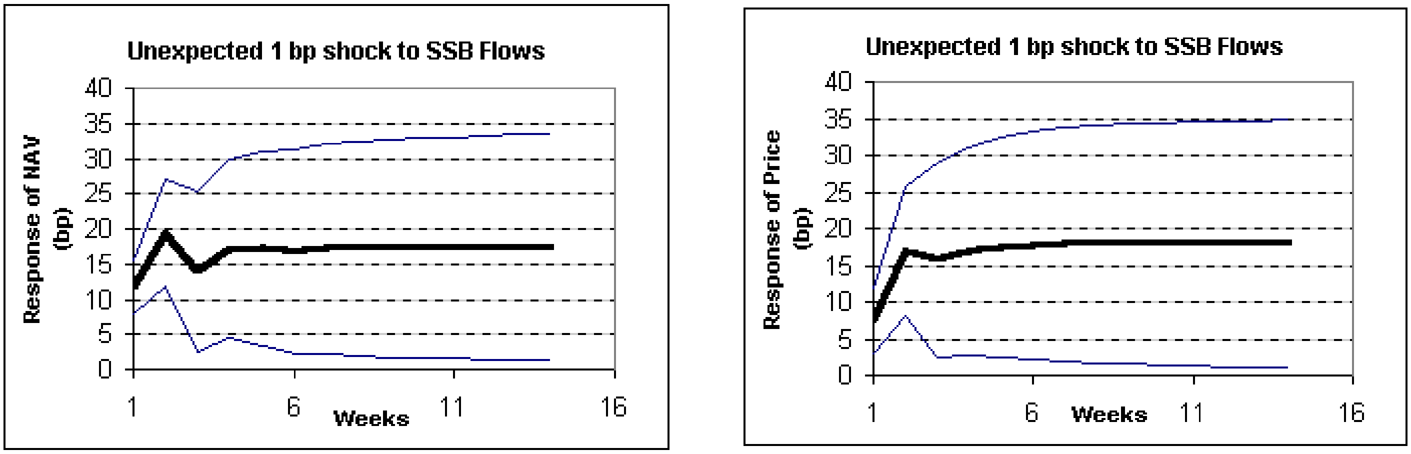

Fig. 2. Impulse response functions: all funds. The cumulative impulse response functions for the NAV and Price to SSC Flow innovations are shown here. Parameters are from the VECM as reported in Tables IX and X. Each impulse response function is derived by generating an innovation to one of the endogenous variables in the system, while holding the others fixed. The impact of the innovations on the cointegrating vector is kept track of following every period in which the system is shocked. The IRF's are shown with 90% confidence intervals, which are obtained by Monte Carlo simulation. Parameter values are drawn from the asymptotic joint distribution of parameters, and a simulated IRF is computed. The procedure is repeated 1000 times.

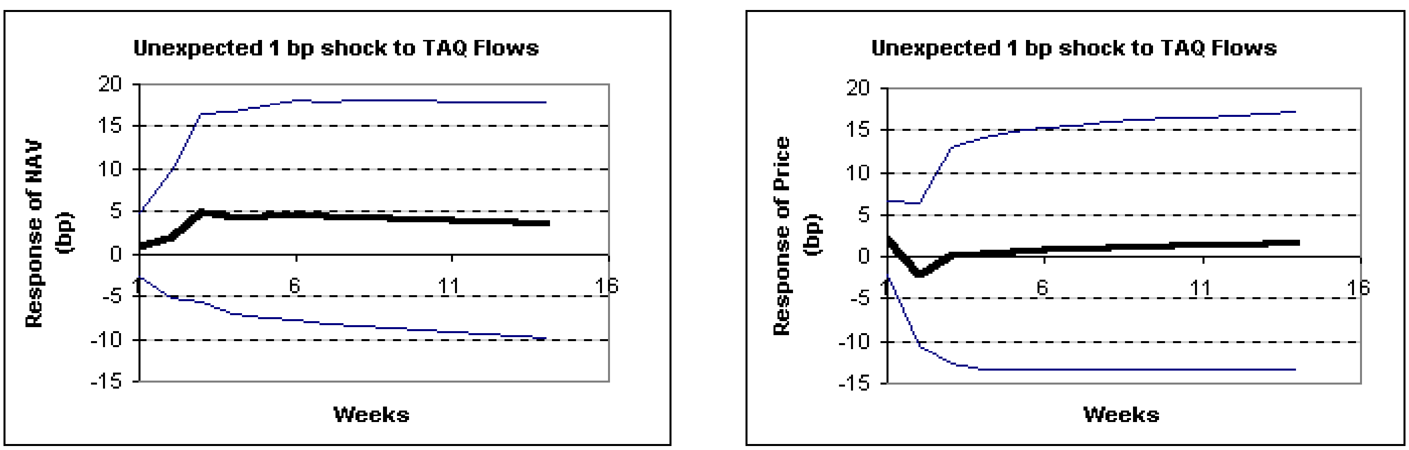

Fig. 3. Impulse response functions: all funds. The cumulative impulse response functions for the NAV and Price to Institutional Investor TAQ Flow innovations are shown here. Parameters are from the VECM as reported in Tables IX and X. Each impulse response function is derived by generating an innovation to one of the endogenous variables in the system, while holding the others fixed. The impact of the innovations on the cointegrating vector is kept track of following every period in which the system is shocked. The IRF's are shown with 90% confidence intervals, which are obtained by Monte Carlo simulation. Parameter values are drawn from the asymptotic joint distribution of parameters, and a simulated IRF is computed. The procedure is repeated 1000 times.

Appendix: Funds, Regions and Countries

Numbers in parentheses represent the total number of funds from the country in the dataset.

Regions and Funds	Ticker Symbol	Start Date	Country	Exchange
Developed Markets				
First Australia Fund	IAF	5-Aug-94	Australia	AMEX
Austria Fund	OST	5-Aug-94	Austria	NYSE
Germany Fund	GER	5-Aug-94	Germany (2)	NYSE
New Germany Fund	GF	5-Aug-94		NYSE
Irish Investment Fund	IRL	5-Aug-94	Ireland	NYSE
Italy Fund	ITA	5-Aug-94	Italy	NYSE
Japan Equity Fund	JEQ	5-Aug-94	Japan (2)	NYSE
Japan OTC Equity Fund	JOF	5-Aug-94		NYSE
Spain Fund	SNF	5-Aug-94	Spain	NYSE
Swiss Helvetia Fund	SWZ	5-Aug-94	Switzerland	NYSE
Emerging Markets				
Latin America				
Argentina Fund	AF	5-Aug-94	Argentina	NYSE
Brazil Fund	BZF	5-Aug-94	Brazil (2)	NYSE
Brazilian Equity Fund	BZL	5-Aug-94		NYSE
Chile Fund	CH	5-Aug-94	Chile	NYSE
Mexico Equity & Income Fund	MXE	5-Aug-94	Mexico (2)	NYSE
Mexico Fund	MXF	5-Aug-94		NYSE
Emerging East Asia				
Indonesia Fund	IF	5-Aug-94	Indonesia (2)	NYSE
Jakarta Growth Fund	JGF	5-Aug-94		NYSE
Fidelity Advisor Korea Fund	FAK	4-Nov-94	Korea (4)	NYSE
Korea Equity Fund	KEF	5-Aug-94		NYSE
Korea Fund	KF	5-Aug-94		NYSE
Korean Investment Fund	KIF	5-Aug-94		NYSE
Malaysia Fund	MF	5-Aug-94	Malaysia	NYSE
First Philippine Fund	FPF	5-Aug-94	Philippines	NYSE
Singapore Fund	SGF	5-Aug-94	Singapore	NYSE
ROC Taiwan Fund	ROC	5-Aug-94	Taiwan (3)	NYSE
Taiwan Equity Fund	TYW	5-Aug-94		NYSE
Taiwan Fund	TWN	5-Aug-94		NYSE
Thai Capital Fund	TC	5-Aug-94	Thailand (2)	NYSE
Thai Fund	TTF	5-Aug-94		NYSE
Emerging Europe				
Portugal Fund	PGF	5-Aug-94	Portugal	NYSE
Turkish Investment Fund	TKF	5-Aug-94	Turkey	NYSE
Other Emerging Markets				
India Fund	IFN	5-Aug-94	India (4)	NYSE
India Growth Fund	IGF	5-Aug-94		NYSE
Jardine Fleming India Fund	JFI	5-Aug-94		NYSE
Morgan Stanley India Inv. Fund	IIF	5-Aug-94		NYSE
First Israel Fund	ISL	5-Aug-94	Israel	NYSE
Pakistan Investment Fund	PKF	5-Aug-94	Pakistan	NYSE
Southern Africa Fund	SOA	5-Aug-94	South Africa	NYSE