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Research Paper No: 10-05

Research Paper Series

Centre for Analytical Finance

Indian School of Business

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October 2005

[*] Earlier drafts of the paper were circulated under the title "Illiquidity and Closed-End Country Fund Discounts." We thank Yakov Amihud, Doron Avramov, Marshall Blume, Michael Brennan, Jay Choi, Bhagwan Chowdhry, Craig Doidge, Andrew Karolyi, Karen Lewis, Kai Li, Francis Longstaff, D. K. Malhotra, Avanidhar Subrahmanyam, Hong Yan, and participants at the American Finance Association 2005 Annual Meeting, the Asian Finance Association 2005 Annual Meeting, Centre for Analytical Finance, Indian School of Business, Summer Research Conference 2005, Singapore Management University, University of California, Irvine, University of Toronto, and the Wharton Brown Bag Seminar for helpful comments. We also thank Zhihua Qiao, Huarong Tang, and Sehyun Yoo for excellent research assistance and Lipper Funds for kindly providing relevant closed-end fund data. Jain gratefully acknowledges financial support from CIBER at Temple University. Xia gratefully acknowledges financial support from the Wharton-SMU Research Center of the Singapore Management University and the NASDAQ fellowship from the Rodney L. White Center at the Wharton School.
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Abstract

In a segmented international capital market, illiquidity in the market in which the shares of a country fund are traded affects only the share price of the fund (S), while illiquidity in the market in which the underlying assets are traded affects only the fund net asset value (NAV). In an integrated market, illiquidity in one market can easily spill over to another and affect both the fund share price and its underlying asset value. It follows that the closed-end country fund premium, $P \equiv \ln(S) - \ln(NAV)$, is negatively (positively) affected by the share (asset) market illiquidity in segmented capital markets, but has only an ambiguous association with either share or asset market illiquidity in an integrated market. Empirical evidence from U.S.-traded single-country closed-end funds shows a strong negative (positive) association between the fund premium and the share (asset) market illiquidity, and the relation is much stronger for funds investing in segmented markets. The results suggest that market illiquidity plays a significant role in explaining the variation in closed-end country fund premia.

I. Introduction

A closed-end fund is a firm that issues shares and uses the proceeds to invest in the shares of other companies. A closed-end *country* fund is a fund that issues shares in one country such as the UK or the U.S. (the share or host market) and invests the proceeds in the shares of companies in a specific foreign country such as Korea (the asset or home market). Closed-end funds have a fixed number of shares. In general, fund shares are traded at prices (S) different from the net asset value per share (NAV), which is announced at regular intervals (usually weekly or daily). Defining $P \equiv \ln S$ - $\ln NAV$, the fund is said to sell at a premium (discount) when $P > 0$ ($P < 0$). In what follows, we shall refer only to the fund premium noting that a discount is a negative fund premium.

Closed-end fund premia are often cited as evidence of the limits to arbitrage and of investor irrationality. In an influential paper, Lee, Shleifer, and Thaler (1990) identify four empirical regularities associated with the fund premium: 1) closed-end fund shares are generally issued at a positive premium;[1] 2) they often trade at a negative premium; 3) the premium varies widely over time and across funds; and 4) the share price converges to NAV at liquidation or open-ending.

Theories based on frictions such as agency costs, taxes, market segmentation, and mis-valuation of underlying assets have had some success in explaining the first two empirical regularities, but none can account for the wide variation of fund premia. For example, Bonser-Neal, Brauer, Neal, and Wheatley (1990) find a significant relation between premia on country funds and announcements of changes in foreign investment restrictions, but investment

[1]Weiss (1989) and Hanley, Lee, and Seguin (1994) provide empirical evidence of closed-end fund premium at the issuance, and initial price stabilization behavior provided by the lead underwriters. Cherkes (2003) argues that this special feature of buyers paying the IPO costs via IPO over-pricing with the underwriters providing prolonged after-market price support as a supplement to the IPO over-pricing is neither anti-competitive nor predatory.

restrictions can explain only large positive premia. Ross (2002) argues that the average negative premium is related to management fees and dividends, but Malkiel (1977) finds no correlation between U.S. closed-end fund premia and fund expense ratios. Barclay *et. al.* (1993) examine the relation between block ownership and premia, and Wermers *et. al.* (2004) investigate the dynamics of premia surrounding the event of management replacement, but neither study explains the wide variation of fund premia. Similarly, explanations based on the investor sentiment hypothesis have had some success in accounting for the co-movement of fund premia, but even these explanations do not explain the wide variation of fund premia.[2]

Thus the wide variation in fund premia remains largely unexplained. In this paper we provide a simple explanation that is based on the liquidity of the markets in which the shares and the assets of the funds are traded. Liquidity is a multi-dimensional attribute of an asset that includes the cost of a transaction, the ability to trade promptly, the ease with which large quantities can be traded, and the impact of trading on prices. Financial assets with similar, or even identical, payoffs often differ in liquidity, and several studies have shown that illiquid assets tend to have lower prices and higher returns.

An important feature of closed-end funds is that the shares and the underlying assets are close substitutes, but are typically traded with different levels of liquidity. To the extent that liquidity affects asset prices, we should expect premia to reflect the difference between the liquidity of the share (U.S.) market and that of the asset (foreign) market, and to vary over time as their relative market liquidity varies. The negative relation between illiquidity and asset

[2]The investor sentiment hypothesis is based on the notion that closed-end fund shares are mainly held by individual investors, many of whom are irrational and driven by sentiment. Theoretical models of this include De Long, Shleifer, Summers, and Waldmann (1990) and Palomino (1996), among others. Lee, Shleifer, and Thaler (1991), Hardouvelis, La Porta, and Wizman (1994), Klibanoff, Lamont, and Wizman (1998), Bodurtha, Kim, and Lee (1995), and Pontiff (1996, 1997) provide empirical evidence that the investment sentiment explains the comovement in closed-end fund discounts. However, Elton, Gruber, and Busse (1998) and Gemmill and Thomas (2002) cast doubt on the investor sentiment explanation of closed-end fund premia or discounts. In addition, Dimson and Minio-Kozerski (1999) point out that the sentiment hypothesis is inconsistent with the empirical evidence on UK closed-end funds, which are largely dominated by institutional investors.

prices found in U.S. bond and stock markets suggests that high share market illiquidity is likely to reduce the share price and thus decrease the fund premium while high asset market illiquidity is likely to reduce the asset value and thus increase the fund premium. Although this is true of domestic as well as country funds, we restrict our analysis to country funds because the effect of illiquidity on fund premia is clearer and easier to detect when the shares and the underlying assets are traded in different markets.

We do not claim that liquidity is the *only* explanation for the wide variation of closed-end fund premia. Rather we show that asset and share market illiquidity have a statistically significant and economically important relation to fund premia even after controlling for other variables such as the closed-end fund's expense ratio, dividend yield, size, and age, as well as a proxy for investor sentiment, and, therefore, should be included in models of closed-end fund premia.

Using price and NAV data from August 1987 to December 2001 for 41 U.S.-traded closed-end single-country funds, we show that illiquidity *alone* accounts for around 36% of the variation in fund premia. Market illiquidity and the control variables *together* explain over 60% of the variation in the premia. The relation between illiquidity and premia remains significant in the presence of all of the control variables that have been proposed in previous studies, so it is unlikely that our illiquidity measures are proxying for other known determinants of premia or discounts.

The association between premium and illiquidity is affected by the degree of market segmentation and the ease with which liquidity shocks are transmitted between markets. We split the funds into two groups according to the degree of segmentation between the share (U.S.) market and the corresponding asset (foreign) market. The first group consists of funds that

invest in open economies whose markets are likely to be integrated with the U.S. market, and the second group consists of funds that invest in emerging markets that are mostly segmented from the U.S. market. We find that for the second group of funds, the share market illiquidity is negatively associated with the premium while the asset market illiquidity is positively associated with the fund premium. This is consistent with our hypothesis that high *asset market* illiquidity is likely to reduce *only* the fund's asset value and therefore to increase the fund premium, whereas high illiquidity in the *share market* is likely to reduce *only* the fund's share price and therefore to decrease the fund premium if the asset market is segmented from the share market. On the other hand, the association between the illiquidity of the two markets and the fund premium is more mixed for funds investing in integrated markets. This is consistent with investors being able to switch between the fund shares and its underlying asset portfolio, so that liquidity in one market can easily spill over to the other.

This study's results provide further evidence of the negative effect of illiquidity on asset prices, and have implications that extend beyond closed-end country funds. They provide an explanation for the effect of location of trade on asset prices. For example, there are significant differences between the prices of different classes of shares used by "Siamese-twin" companies such as Royal Dutch and Shell[3] and also between ADRs and their corresponding asset market shares. Our results suggest that liquidity differences between the two markets may also explain these price differences. Indeed, Gagnon and Karolyi (2004) find that illiquidity in the U.S. and the foreign market is significantly related to the price difference between ADRs and their asset market counterparts.

[3]See Bedi, Richards, and Tennant (2003) and the references therein for evidence on the price difference in different classes of shares used by "Siamese-twin" companies.

The remainder of the paper is organized as follows. In section II, we motivate the empirical analysis by linking liquidity in the share (U.S.) and the asset (foreign) markets to country fund premia. In section III, we provide detailed information on the construction of the illiquidity measures for the share (U.S.) and the asset (foreign) markets. In Section IV, we discuss the data on closed-end country fund premium and other control variables and report summary statistics. In Section V, we report empirical findings and their implications. Section VI summarizes and concludes the paper.

II. Market Segmentation and the Effect of Liquidity on Fund Premium

Theoretical studies of the effect of illiquidity on asset prices have yielded mixed results. While Kyle (1985) and Allen and Gale (1996) show an important effect of illiquidity on asset prices, Constantinides (1986) and Vayanos (1998) show that illiquidity in the form of transaction costs has a large effect on asset turnover but only a very small effect on asset prices.[4] However, empirical studies consistently show that illiquidity depresses asset prices and leads to higher asset returns. In the bond market, on-the-run Treasury bonds are more liquid and have higher prices than their off-the-run counterparts even though they have very similar cash flows and characteristics; Treasury bonds have higher prices and greater liquidity than similar government agency bonds even after controlling for coupon payment and default risk. For example, Longstaff (2002) finds a large liquidity premium in Treasury bond prices by comparing Treasury bond prices with prices of bonds issued by Refcorp, a U.S. Government agency, that are guaranteed by the Treasury. In the stock market, Amihud (2002) shows that the aggregate stock returns are higher when the market is less liquid. Amihud and Mendelson (1986), Brennan

[4]Other theoretical studies include Amihud and Mendelson (1986), Glosten (1989), Vayanos (2003), Huang (2003), Wang and Vayanos (2003), and Longstaff (2004), among others.

and Subrahmanyam (1996), and Brennan, Chordia, and Subrahmanyam (1998) also show that less liquid stocks tend to have higher returns.[5] Finally, Pastor and Stambaugh (2003) find that stock returns are related, not only to levels of liquidity, but also to the covariance of returns with measures of market liquidity.

Consider now the effect of liquidity on the closed-end fund premium, which is defined as the difference between log fund share price S and log fund asset value NAV: $P \equiv \ln S - \ln NAV$. When the asset market is completely segmented from the share market, illiquidity in one market is confined to that market alone. Since illiquidity is associated with lower asset prices, high share market illiquidity implies a lower share price, S, but has no effect on asset value, NAV, which then leads to a lower fund premium, P. In the opposite case, high asset market illiquidity implies a lower asset value, NAV, but has no effect on the share price, S, which then leads to a higher fund premium, P.

The effect of illiquidity on P, however, is indeterminate if the share and the asset markets are integrated and illiquidity in one market can transmit to another.[6] In reality, some degree of integration exists between markets and to some extent investors can substitute between investment in the closed-end fund and direct investment in the underlying asset. When one market suffers from high illiquidity, it is optimal for investors to divert some of their demand for or supply of liquidity to another market: as a result, the illiquidity in one market gets transmitted to another. Thus, illiquidity of the share or of the asset market can affect both the fund price, S, and the fund asset value, NAV, leading to an ambiguous effect on the fund premium, P. We expect that the degree of liquidity spillover and its effect on close substitutes

[5]Other empirical studies include Datar, Narayan and Radcliffe (1998), Chordia, Roll and Subrahmanyam (2000, 2001), and Lo and Wang (2000), among others.

[6]For example, Newman and Rierson (2004) find strong evidence that the illiquidity in one corporate bond spills over to other bonds in the same sector.

traded in different markets depend on how integrated the two markets are. Consequently, the effect of illiquidity on fund premium depends on the degree of integration of the fund's asset market with its share market. In particular, the clear-cut negative share market illiquidity effect and positive asset market illiquidity effect on P holds only for funds investing in segmented markets, while the relation may be positive, negative or zero for funds investing in integrated markets.

An interesting example of the effect of illiquidity is provided by the movement of fund premia around the Asian financial crisis in 1997-1998, when several Asian countries experienced a liquidity crunch, while the share market (U.S.) was less affected. On June 26, 1998, in the middle of the crisis, all funds investing in Indonesia, Malaysia, Thailand, Korea, and Russia were trading at large premia. At the same time, all other funds, no matter whether they invested in emerging or developed markets, were trading at discounts. Even funds invested in other Asian markets such as Taiwan, China, Hong Kong and India that were less exposed to the crisis, traded at discounts. Cohen and Remolona (2001) report that the prices of funds investing in Russia and in countries affected by the Asian financial crisis moved from a discount before the crisis to a premium when the crisis started, and the premium rose for all the funds during the crisis and then declined gradually after the crisis.

III. Measures of Illiquidity

Our measure of illiquidity is related to Kyle's (1985) lambda, which measures the effect of order flow on prices. Amihud (2002) shows how to construct a Kyle-type measure of illiquidity using only daily returns and volume, which are readily available for almost every market.[7]

[7]Many different measures of illiquidity have been used in empirical studies. For example, Amihud and Mendelson (1986) used the quoted bid-ask spread on stock returns and Chalmers and Kadlec (1998) used the amortized effective

We measure illiquidity each month for the U.S. market in which the funds' shares are traded, and for the corresponding foreign market in which each fund's underlying assets are traded. Following Amihud (2002), our illiquidity measure for stock i at month t in market c, $IL_{i,c,t}$, is defined as the average ratio of the absolute daily price change to a measure of the trading volume:

$$IL_{i,c,t} = \frac{1}{D_t}\sum_{d=1}^{D_t}\left|R_{i,d}\right|/VOL_{i,d} \qquad (1)$$

where D_t is the number of trading days in month t (approximated as 21 days), $R_{i,d}$ and $VOL_{i,d}$ are stock i's daily return and daily volume in day d of month t, respectively. As in Amihud (2002), the measure of illiquidity for each individual stock is scaled by a multiplication of 10^6. Foreign market $R_{i,d}$ and $VOL_{i,d}$ are measured in U.S. dollars at the daily Datastream-reported foreign exchange rate. Unlike Amihud (2002), which calculates illiquidity annually for stocks with at least 200 daily observations each year, we use only around 21 days to calculate IL for each month, so that we can relate illiquidity to fund premia at a monthly frequency.

The market wide illiquidity for the asset market c (share market U.S.), $CIL_{c,t}$ $(USIL_t)$, is calculated as the equally weighted average of the illiquidity of *all qualifying* individual stocks in a representative market index for that market:

$$CIL_{c,t} = \frac{1}{N_{c,t}}\sum_{i=1}^{N_{c,t}} IL_{i,c,t} \qquad (2)$$

where $N_{c,t}$ is the number of stocks in the index of country c in month t. The qualifying stocks included in the above calculation satisfy two criteria: (i) they must have trading volume greater

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spread as a measure of liquidity. Brennan and Subrahmanyam (1996) measured illiquidity with the price response to signed order flow and with the fixed cost of trading based on continuous data on transaction and quotes, and Pastor and Stambaugh (2003) estimated liquidity cost from *signed* volume related return reversals. Most of these liquidity measures require TAQ or equivalent data, which are not readily available in most foreign markets. Hasbrouck (2003) finds that the Amihud measure is highly correlated with the TAQ-based price impact measure in the U.S. market. In examining the short-run reversal and return illiquidity, Avramov, Chordia, and Goyal (2005) report that they obtain similar results when they replace the Amihud measure of illiquidity with other measures of illiquidity.

than 1000 shares and returns data available for at least 14 out of the 21 days in the month, and (ii) their estimated illiquidity measure is not at the highest or lowest 5% tails of the distribution among stocks satisfying criteria (i).[8]

Daily data for prices, returns, and volumes on individual stocks from 8/7/1987 to 12/31/2001 in the share (U.S.) market are collected from CRSP, while the corresponding data for the foreign asset markets are collected from Datastream. Table I lists the country funds and Table II lists the stock index that was used to select the initial group of individual stocks whose returns and volumes are used to calculate the market illiquidity for the share market and for 24 asset markets corresponding to the closed-end country funds in our sample. For some emerging markets, our illiquidity measure is available for a shorter sample period than the fund premium data.

We find that illiquidity varies widely across asset markets possibly due to strikingly different levels of volume and wide variation in the number of firms included in each market's index. There is also a significant time trend in the illiquidity of 20 of the 24 asset markets, with 11 of them negative and 9 of them positive.

IV. Closed-end Country Fund Data

A. Fund Premium

We focus on U.S.-traded single country closed-end funds and, like most prior studies, exclude all 'international' funds that do not invest primarily in a single country. The Wall Street Journal reports at the beginning of the week the closing price, the net asset value (NAV), and the discount, as of the last trading day of the previous week, for all U.S.-traded closed-end funds.

[8]Criterion (ii) here is similar to criterion (iv) in Amihud (2002). Our screening criteria are generally less stringent than those in Amihud (2002) due to the need to calculate illiquidity for foreign and especially emerging markets.

These data were collected for the last Friday of each month from Dow Jones Interactive, for the 8/7/1987-12/31/2001 period. Observations on the last Friday of each month are used in the analysis. There were only seven country closed-end funds prior to August 1987 and only three prior to 1986, so the sample used in this study is fairly comprehensive. There are altogether 47 single country funds trading in the U.S., and their underlying assets trade in 29 different countries. We exclude the six funds for which there is not enough data to calculate the asset market illiquidity, so our sample contains the remaining 41 funds whose underlying assets trade in 24 different asset markets.

To avoid distortions associated with the flotation and winding up of closed-end funds, we exclude data for the first six months after the fund's IPO[9] and for one month preceding the announcement of either a liquidation, open-ending, or change in investment objective.[10] The announcement date used for any such change is the day on which the fund's managers or board of directors propose a change in the structure or in the investment objective of the fund. If shareholders propose a change, then the announcement date is the date of approval by shareholders of such a change. This approach is used because shareholders frequently propose changes but are rarely successful. The announcement date is determined based on news announcements and/or SEC filings. After this adjustment, there are at least 58 monthly observations for all funds. A few funds, such as the Germany Fund, the First Australia Fund and the Taiwan Fund, have complete observations for the entire duration of our sample period.

Thirty-three funds have negative average premia, and for most of these funds the average premium is less than -15%. For example, the New Germany (GF) and the First Philippine

[9]Weiss (1989) finds that closed-end funds usually start out at a premium and that most of the price decline in closed-end funds occurs between 30 and 100 days after the issue. Hanley, Lee and Seguin (1994) find substantial evidence of price stabilization by lead underwriters during the first 100 days of issuance. Thus, in the initial trading period of a fund, the discount may have an obvious deterministic trend.

[10]Banerjee and Gangopadhyay (1997) report that when a closed-end fund approaches its windup date or turns open-ended, its price converges to its NAV and thus its discount shrinks in a trended way.

(FPF) funds have average premia of almost -20%. Seven of the eight funds that have average positive premia invest in emerging markets, most of which are in Asia. Japan Equity (JEQ) is the only fund with an average positive premium that invests in a developed market. The Indonesia Fund (IF) has the largest average premium of about 18.2%, followed by the Korea Fund (KF) and the Thai Fund (TTF) with an average premium of around 15%. These large fund premia, especially those observed in the early sample period (before 1990), may be driven by capital controls imposed in those countries as suggested in Bonser-Neal *et. al.* (1990). [11] On the other hand, three funds (Emerging Germany, New Germany, Growth Fund Spain), all of which invest in European countries with virtually no capital controls, never had a positive premium throughout the period.

The time series variation in fund premium is large, and differs widely from fund to fund. The standard deviation of the premium ranges from a low of 5% for the United Kingdom fund (UKM) to a high of 28% for the Korea Fund (KF), for which the premium ranges from -41% to over 91%.

B. Control Variables

We also collect data on the following fund specific and country specific variables that have been found in prior studies to be important determinants of the fund premium (see Table III for summary statistics):

- Expense ratio (ExpRatio): Lipper reports the expense ratio (total annual expense divided by NAV) of each fund at an annual frequency. We use the latest expense ratio available

[11] We do not explicitly consider the effect of capital controls using government policy announcements as event dates. Instead we use the Edison-Warnock (2003) simple measure of capital control intensity as a control variable in our empirical analysis.

at the end of each month as the expense ratio for that month. The average expense ratio ranges from 1% for the Japan Equity Fund (JEQ) to a high of almost 2.8% for the Thai Capital Fund (TC).

- Size (lnCap): The fund's market capitalization (in millions of dollars) is obtained from CRSP. Because this variable is highly skewed, we use its natural log in all of the tests. The average market capitalization ranges from a low of $35.6 million for the Jakarta Growth Fund (JGF) to a high of $581.4 million for the Mexico Fund (MXF), and 22 of the 41 funds have an average market capitalization greater than $100 million.
- Age (lnAge): At the end of each month, each fund's age is calculated as the natural log of the number of years from its IPO date.
- Dividend yield (Divyld): The dividend yield is calculated as the CRSP reported dividends (excluding capital gains dividends) paid by the fund in the prior 12-month period scaled by the end of month NAV. Thirty-eight out of the 41 funds paid some dividends during this period, and the average dividend yield across all 41 funds is about 1.7% with the highest yield at 7.64% for the Mexico Equity and Income Fund (MXE).
- Institutional ownership (InstOwn): Thomson Financial reports the institutional ownership for closed-end funds at the end of each quarter based on 13(f) filings by institutions. We use the latest available ownership data at the end of each month. On average, institutional ownership ranges from 4.2% (GER) to about 28.6% (IIF). This indicates that the majority of country fund shares are held by individual investors.
- Edison-Warnock measure of capital controls (EWS): Edison-Warnock (2003) construct measures of the intensity of capital controls across 29 emerging markets based on

restrictions on foreign ownership of equity.[12] They provide information on the extent and evolution of financial liberalization with 1 denoting complete capital control and 0 denoting the absence of capital control. Twenty-six of the funds investing in thirteen different asset markets, all of which are in emerging economies, have EWS measures greater than zero throughout the period and are classified as funds investing in segmented markets. The remaining 15 funds investing in eleven different asset markets, all of which are in open developed economies, have EWS measures equal to zero and are classified as funds investing in integrated markets. The average measure for the thirteen segmented markets ranges from a low of 0.11 for Argentina to a high of 0.84 for India. For all countries except Russia, the measure exhibits a strong negative trend, indicating that capital controls have been gradually reduced in all emerging asset markets except for Russia.

- Share (U.S.) market factor (USMKT): The concurrent monthly CRSP value weighted average return for all NYSE, AMEX and NASDAQ stocks is used to control for the market risk factor in the share market.
- Asset (foreign) market factor (CMKT): The concurrent monthly total market index returns in local currency for the twenty-four asset markets obtained from Datastream are used to control for the market risk factor in the asset market.
- Foreign exchange appreciation rate (FXCHG): The concurrent monthly change in the foreign exchange rate between the U.S. and the foreign country is measured as units of foreign currency per U.S. dollar and obtained from Datastream. This captures any movement in the fund premia caused by the change in the foreign exchange rates.

[12]We thank Craig Doidge for suggesting this measure to us and Edison and Warnock for making this measure available on the web page of the Federal Reserve Board:
http://www.federalreserve.gov/pubs/ifdp/2001/708/default.htm.

- Average fund premium (AVGPrem): Following Bodurtha *et. al.* (1995), we calculate the arithmetic average premium for all funds each month. This variable is often used in the literature as a proxy for small investor sentiment. The average fund premium exhibits a clear time trend during the period. A regression of AVGPrem on time yields a significantly negative coefficient and a large R^2 (33%). Figure 1 plots the average fund premium from August 1987 to December 2001. The premium fluctuates substantially: at the start of the sample period, it is almost 13% but then drops rapidly in two months to almost -13% at the time of the stock market crash of October 1987. In January 1990, the average fund premium reached a high of over 28%. The large average premium in the early period (when there were few country funds) was driven mainly by the large premia of the two Asian country funds: the Korea fund and the Taiwan fund.

Table III reports summary statistics of the average premium, the natural log of fund average illiquidity and the control variables. The average fund premium is about -6.6%: it is around -3% for funds investing in segmented markets and -11% for funds investing in integrated markets. The average age of the funds is around 6 years, and the age of funds investing in segmented markets (5.8 years) is slightly less than that (6.2 years) of funds investing in integrated markets.

The Edison-Warnock capital control measure for the 13 segmented markets is 0.58, on average. The average fund has a market capitalization of $153.8 million. The average market capitalization is $177.4 million for funds investing in segmented market and $123.2 million for funds investing in integrated markets. The average dividend yield across all 41 funds is 1.95%, and it is 1.71% (2.45%) for the 26 (15) funds investing in segmented (integrated) markets. The average expense ratio across all 41 funds is 1.83%, and it is 1.95% (1.64%) for the 26 (15) funds

investing in segmented (integrated) markets. Institutional investors own 13.7% of the country funds on average, and around 16.2% (10.4%) of the funds investing in segmented (integrated) markets.

In summary, funds investing in segmented markets generally have lower dividend yield, higher expense ratio, higher institutional ownership, and larger premia than those investing in integrated markets. Additionally, during the time period examined in this study, the average stock market returns are higher in segmented markets (2.34% per month) relative to integrated markets (0.71% per month).

V. Empirical Analysis

In this section, we examine the association between the level of the closed-end country fund premium and the share market illiquidity, the asset market illiquidity, and the control variables. Table IV reports averages of the time series correlations of the variables used in the empirical analysis. There is a strong co-movement in the premia of different funds, as suggested by the correlation of 0.5 between the individual and average fund premium. On average, the individual fund premium is negatively correlated with institutional ownership (-0.46) and age (-0.34), positively correlated with the asset market capital control measure (0.36), the expense ratio (0.21), and asset market illiquidity (0.12). The other correlations are all smaller than 0.1. The large negative correlation between the U.S. market illiquidity and fund age (-0.54) indicates a gradually improving liquidity over time in the U.S. market. In contrast, the foreign market illiquidity has a small positive correlation with fund age. Returns in the foreign and the U.S. markets are positively correlated (0.39). The Edison-Warnock capital control measure (EWS) has a strong negative correlation with fund age (-0.8), consistent with the fact that most foreign

markets have gradually loosened capital controls during this period. On the other hand, the positive correlation between EWS and the average fund premium is consistent with the notion that restrictions on direct investment in some foreign markets makes the corresponding closed-end country funds attractive to investors, which leads to a higher fund premium for such funds. Larger funds and funds with higher institutional ownership tend to have lower expense ratios as reflected by the negative correlations. Finally, the large negative correlation between the average fund premium and fund age implies that, on average, funds get deeper into discounts with the passage of time.

To estimate the effect of the share and the asset market illiquidity on country fund premia, we estimate a panel regression of fund premium on the share market illiquidity, the asset market illiquidity, and the control variables:

$$\begin{aligned} P_{f,c,t} = {} & \alpha_f + \beta_1 \ln USIL_t + \beta_2 \ln CIL_{c,t} + \beta_3 USMKT_t + \beta_4 CMKT_{c,t} + \beta_5 FXCHG_{c,t} \\ & + \beta_6 EWS_{c,t} + \beta_7 \ln Cap_{f,t} + \beta_8 Divyld_{f,t} + \beta_9 ExpRatio_{f,t} + \beta_{10} InstOwn_{f,t} \\ & + \beta_{11} AVGPrem_t + \beta_{12} \ln Age_{f,t} \end{aligned} \tag{3}$$

where α_f is the fund fixed effect variable which captures fund specific characteristics that are not explained by these control variables. The (fund invariant) average fund premium, AVGPrem, captures both investor sentiment and the time fixed effect. The equation is estimated with and without the control variables.

Columns (1)-(4) of Table V report the regression results for all funds using raw data (i.e. data which is not detrended). When the fund premium is regressed on the U.S. and foreign market illiquidity, the two illiquidity variables explain 36.3% of the time variation in fund premium, but the two coefficients are not significant at the 5% level. However, when we add the average premium as an additional regressor in column (2) to take account of the time fixed effect, not only does the regression R^2 improve to 50.6%, but also all three regressors become

highly significant. Consistent with the negative illiquidity-asset price relation found in a single market, high U.S. market illiquidity is significantly associated with a lower fund price and thus a lower fund premium. On the other hand, higher asset market illiquidity is significantly associated with a lower fund NAV, and thus a higher premium. Consistent with Bodurtha *et. al.* (1995), the coefficient estimate of 1.1 for 'AVGPrem' is close to one and highly significant. While this suggests a strong co-movement among all country funds, it is not clear that this co-movement is necessarily driven by or reflects small investor sentiment.

In column (3), we report the result of a regression that includes all control variables except 'AVGPrem'. The R^2 goes up to almost 58%, and both illiquidity variables, lnUSIL and lnCIL, remain significant with the right sign. The other significant explanatory variables are FXCHG, EWS, Divyld, ExpRatio, InstOwn, and lnAge. First, the fund premium is not significantly related to either the share or the asset market factors, but it is positively and significantly related to the appreciation rate of dollar. Second, everything else constant, funds investing in markets with stronger capital controls tend to have higher premium, which is intuitive as limited direct investment drives up the demand for the country funds. Third, funds with higher premia are also associated with higher dividend yields, higher expense ratios, but lower institutional ownership. The significantly positive relation between fund premium and dividend yield is consistent with the implication of the simple model proposed by Ross (2002). While the positive relation between fund premium and the fund's expense ratio is difficult to reconcile with the simple static expense-based explanation for fund discounts, as it implies that funds with higher premium or lower discount tend to have higher expense ratios, it is potentially consistent with the dynamic model of Berk and Stanton (2004) in which managers whose funds are trading at a premium or a smaller discount have more bargaining power to increase their compensation,

and consequently, the fund expense. The negative relation between fund premium and institutional ownership is consistent with two possible explanations: either institutional investors are value investors who tend to buy "cheap" funds at deep discounts or, as suggested by Barclay *et. al.* (1993), they are simply friends of entrenched managers and thus enable the existence of deeper discounts.[13] Finally, the fund premium is negatively and significantly associated with fund age so that older funds tend to have a smaller premium or a larger discount.

When 'AVGPrem' is included in the regression in column (4), fund age is no longer significant, but the coefficient estimates and statistical significance of all other variables remain virtually unchanged.

In columns (5)-(8), the regression is carried out for funds investing in segmented markets. Results for this group of funds are very similar to those for all funds except for the coefficient on fund size. Contrary to the widely documented positive relation, the coefficient on size is significantly negative. Size captures two effects in this case. On the one hand, it is highly negatively correlated with the fund's illiquidity, so it is a good proxy for fund liquidity. As a result, larger funds tend to have higher liquidity (or lower illiquidity) and thus higher fund premium, implying a positive relation between premium and size. On the other hand, the size of funds investing in segmented markets also represents the U.S. supply of the investment opportunity in restricted foreign markets. Given the level of demand, smaller funds tend to have lower supply and thus higher fund premium, implying a negative relation between premium and size. The negative coefficient reported in column (8) suggests that the supply effect dominates.

In columns (9)-(12), the regression is carried out for funds investing in integrated markets. While both lnUSIL and lnCIL are still highly significant, the coefficient on lnUSIL has changed

[13]A simple regression analysis shows that the change in fund premium is positively and significantly related to lagged institutional ownership, providing support for the first hypothesis that institutional investors are likely to be value investors.

from around -0.04 for all funds and -0.07 for segmented market funds to a positive 0.03. The positive sign is inconsistent with the hypothesis that higher U.S. market illiquidity implies a lower fund price and thus a lower fund premium, but is consistent with the hypothesis that illiquidity in the U.S. market gets transmitted easily to integrated (European and Japanese) asset markets so that U.S. market illiquidity affects both fund price and NAV resulting in an ambiguous effect on the fund premium.

To address the concern that the series may be nonstationary, we carry out unit root tests for residuals from the panel regression. All the five panel unit root tests[14] strongly reject the null of unit root, no matter whether it is assumed to be specific to an individual series or to be common across all residual series.

In addition to the above unit root tests, we also check the robustness of the results by using detrended data in the fixed effect panel regressions. The detrended variable is the residual from regressing the corresponding raw variable on a time trend. The results are reported in Table VI. Because the data are already detrended, we exclude fund age from the regression. Results for all funds are reported in columns (1)-(4). When the detrended U.S. market and foreign market illiquidity variables are the only regressors, both coefficient estimates remain highly significant with the right sign, providing strong evidence that the association between market illiquidity and the time variation of fund premium is robust to the removal of time trend in the data. When control variables are included in the regression, the fund premium still positively and significantly varies with foreign market illiquidity, but has only an insignificant relation with the U.S. market illiquidity. The fund premium still moves positively with a stronger dollar, and the strong comovement between individual fund premium and the average premium remains in the

[14]Some recent studies such as Levin, Lin and Chu (2002) and Im, Pesaran and Shin (2003) suggest that panel-based unit root tests have higher power than unit root tests based on an individual time series.

detrended variables. While the coefficient on dividend yield (institutional ownership) is still positive (negative) and significant, the other variables no longer have a significant relation with fund premium. In particular, the detrended EWS has now virtually no relation with the fund premium. The results with detrended data for segmented market funds are reported in columns (5)-(8). The U.S. market and the foreign market illiquidity alone account for about 13% of the time variation in fund premium, and both variables remain highly significant with the right sign in the presence of control variables. Except for `EWS', the results for the other variables are broadly consistent with those obtained using the raw data. The regressions are repeated with detrended data for integrated market funds. The results in column (9) suggest that the detrended illiquidity is no longer significantly associated with the fund premium with a regression R^2 of only about 1% and insignificant coefficient estimates. Similar to the result from the raw data, the association between fund premium and the U.S. market illiquidity is positive and highly significant when control variables are added to the regression. The coefficient estimates on the control variables are also mostly consistent with those reported in Table V.

In summary, market illiquidity plays an important role in explaining the variation in the fund premium. Similar to the negative association between illiquidity and bond/stock prices documented in single markets, results for funds investing in segmented markets are consistent with the conjecture that asset (share) market illiquidity negatively affects fund NAV (price) and positively (negatively) affects fund premium. On the other hand, results for funds investing in integrated markets are consistent with the notion that illiquidity can easily spill over borders and lead to an ambiguous effect on fund premium.

VI. Conclusion

Closed-end country fund shares and underlying assets are close substitutes but are traded in different markets with different illiquidity. To the extent that illiquidity affects asset prices, the time varying deviation of fund price from fund NAV may well be driven by stochastic illiquidity in the two markets. Using the price and NAV data of 41 U.S.-traded single country closed-end funds, we examine how much of the variation in fund premium can be explained by illiquidity of the U.S. and of the foreign market.

Empirical results show that share and asset market illiquidity measures alone account for around 36% of the variation in fund premium. In addition, fund premium has a significant and negative relation with the share market illiquidity, and a significant but positive relation with the asset market illiquidity. Market illiquidity and control variables together explain over 60% of the variation in fund premium. The effect of illiquidity on fund premium remains significant in the presence of control variables that are used in previous studies to explain closed-end fund premia, so market illiquidity provides a new and economically important explanation for the wide variation in fund premium. Therefore, the wide variation in fund premium is not so puzzling after all.

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Table I: Information on Closed-end Single Country Funds Traded in the U.S.

This table provides information on all the U.S.-traded single country closed-end funds (CEF) in our sample. Funds investing in a region, or a sector, or primarily in commodities, are not included. Weekly data on each fund's closing price as of Friday (or the last trading day of the week), the net asset value (NAV), and the discount, are collected from the Wall Street Journal / Dow Jones Interactive Service for all dates beginning August 7, 1987. During the period analyzed, several funds announced that they were either open-ending or liquidating or merging with another fund or converting to a new closed-end fund with a different investment objective. The announcement date for these changes is the day on which the fund's managers or board of directors propose a change in the structure or investment objective of the fund. If a shareholder(s) proposes a change, then the announcement date is the date of approval by shareholders of such a change. The announcement date is determined from news announcement and/or SEC filings.

	Fund	Fund		Raw Data		Change of Structure or Investment Objective	
No.	Ticker	Name	IPO Date	From	To	Nature of Change	Announcement Date
1	AF	Argentina	10/22/1991	10/25/1991	12/14/2001	Open-ending	6/11/2001
2	BZF	Brazil	3/31/1988	4/15/1988	12/28/2001		
3	BZL	Brazilian Equity	4/3/1992	4/10/1992	12/28/2001		
4	CH	Chile	10/26/1989	11/3/1989	12/28/2001		
5	FAK	Fidelity Advisor Korea	10/25/1994	11/4/1994	6/30/2000	Open-ending	3/17/2000
6	FPF	First Philippine	11/8/1989	12/1/1989	12/28/2001		
7	FRF	France Growth	5/10/1990	5/18/2990	12/28/2001		
8	FRG	Emerging Germany Fund	3/29/1990	4/20/1990	4/23/1999	Open-ending	11/6/1998
9	GER	Germany	7/18/1996	8/7/1987	12/28/2001		
10	GF	New Germany	1/14/1990	2/9/1990	12/28/2001		
11	GSP	Growth Fund Spain	2/14/1990	3/9/1990	12/11/1998	Open-ending	8/3/1998
12	IAF	First Australia[1]	12/12/1985	8/7/1987	12/28/2001		
13	IF	Indonesia	3/1/1990	3/16/1990	12/28/2001		
14	IFN	India	2/1/1994	2/18/1994	12/28/2001		
15	IGF	India Growth	8/12/1988	8/26/1988	12/28/2001		
16	IIF	MSDW India[2]	2/1/1994	3/11/1994	12/28/2001		
17	ISL	First Israel	10/1/1992	10/30/1992	12/28/2001		
18	ITA	Italy	2/26/1986	8/7/1987	12/28/2001	Liquidating	11/21/2002
19	JEQ	Japan Equity	7/24/1992	8/14/1992	12/28/2001		
20	JFI	Jardine Fleming India	3/1/1994	3/11/1994	12/28/2001		

Table I (continued): Information on Closed-end Single Country Funds Traded in the U.S.

No.	Fund Ticker	Fund Name	IPO Date	Raw Data		Change of Structure or Investment Objective	
				From	To	Nature of Change	Announcement Date
21	JGF	Jakarta Growth	4/16/1990	4/20/1990	6/8/2001	Merging with another CEF	10/11/2000
22	JOF	Japan OTC Equity	3/14/1990	3/30/1990	12/28/2001		
23	KEF	Korea Equity	11/24/1993	12/3/1993	12/28/2001		
24	KF	Korea	8/22/1984	8/7/1987	12/28/2001		
25	KIF	Korean Investment	2/18/1992	3/13/1992	11/23/2001	Open-ending	9/14/2001
26	MEF	Emerging Mexico	10/8/1990	10/12/1990	4/1/1999	Liquidating	10/26/1998
27	MF	Malaysia	5/8/1987	8/7/1987	12/28/2001		
28	MXE	Mexico Equity and Income	8/14/1990	9/7/1990	12/28/2001		
29	MXF	Mexico	6/3/1981	8/7/1987	12/28/2001		
30	OST	Austria	9/21/1989	10/6/1989	12/28/2001		
31	PGF	Portugal	11/1/1989	12/29/1989	6/1/2001	Open-ending	8/20/1999
32	ROC	ROC Taiwan	5/19/1989	5/19/1989	12/28/2001		
33	SGF	Singapore	7/24/1990	8/3/1990	12/28/2001		
34	SNF	Spain	6/21/1988	7/22/1988	12/28/2001		
35	SWZ	Swiss Helvetia[3]	8/19/1987	8/28/1987	12/28/2001		
36	TC	Thai Capital[4]	5/22/1990	6/8/1990	12/28/2001		
37	TRF	Templeton Russia	6/1/1995	9/15/1995	12/28/2001	Converting to New CEF	2/12/2002
38	TTF	Thai	2/17/1988	2/26/1988	12/28/2001		
39	TWN	Taiwan	12/23/1986	8/7/1987	12/28/2001		
40	TYW	Taiwan Equity	7/1/1994	7/29/1994	5/5/2000	Liquidating	12/2/1999
41	UKM	United Kingdom	8/6/1987	8/7/1987	4/23/1999	Liquidating/Open-ending	9/15/1998

1. Also known as Aberdeen Australia Equity
2. Also known as Morgan Stanley India
3. Also known as Helvetia fund
4. The Thai Capital fund changed its ticker symbol from TC to TF on 3/16/2001

Table II: List of Stock Index or Market used to calculate the Amihud Illiquidity Measure

stocks whose dollar returns and dollar volumes are used to calculate the Amihud market illiquidity measure as of the last Friday of each month for all dates from 8/7/1987 to 12/31/2001, for which the necessary data are available on Datastream. The sample period corresponds to the period of closed-end country fund discount data. The sample volatility (STD) of each country's de-trended and de-meaned illiquidity is shown in the last column.

		Illiquidity Data		
Country	Stock Index / Market	From	To	STD
Argentina	MerVal	8/13/1993	12/31/2001	0.46
Australia	All Ordinaries	6/22/1988	12/31/2001	0.65
Austria	ATX	8/7/1987	12/31/2001	0.70
Brazil	Bovespa	7/22/1994	12/31/2001	0.79
Chile	IGPA	7/21/1989	12/31/2001	0.55
France	CAC 40	5/16/1989	12/31/2001	0.44
Germany	DAX 100	1/19/1995	12/31/2001	0.81
India	BSE 500	1/19/1995	12/31/2001	0.44
Indonesia	Jakarta Composite	4/23/1990	12/31/2001	1.05
Israel	TA-100	5/21/1993	12/31/2001	1.18
Italy	MIBTel	8/7/1987	12/31/2001	0.84
Japan	Nikkei 225	12/20/1990	12/31/2001	0.40
Korea	KOSPI	8/7/1987	12/31/2001	0.59
Malaysia	KLSE Syariah	8/7/1987	12/31/2001	0.98
Mexico	INMEX	1/22/1988	12/31/2001	0.93
Philippines	Manila All Shares	8/7/1987	12/31/2001	0.59
Portugal	PSI-20	11/3/1993	12/31/2001	0.88
Russia	Moscow Times	9/26/1995	12/31/2001	0.81
Singapore	Straits Times	8/7/1987	12/31/2001	0.59
Spain	Madrid SE	2/22/1990	12/31/2001	0.59
Switzerland	SWI New Swiss	5/14/1990	12/31/2001	0.44
Taiwan	FTAI: Taiwan Ordinary Securities	5/17/1991	12/31/2001	0.86
Thailand	SET 50	8/7/1987	12/31/2001	0.96
United Kingdom	FTSE All-Share	8/7/1987	12/31/2001	0.78
United States of America	NYSE	8/7/1987	12/31/2001	0.40

Table III: Summary Statistics

This table reports the average value of the fund premium, illiquidity measures, and control variables for all funds, for funds investing in segmented markets, and for funds investing in integrated markets.

Variables	All Funds	Funds Investing in Segmented Markets	Funds Investing in Integrated Markets
Number of funds	41	26	15
Premium (%)	-6.55	-3.08	-11.02
Log US Market Illiquidity	-2.56	-2.56	-2.56
Log Average Foreign Market Illiquidity	9.23	7.25	9.99
US Market Return (% per month)	0.78	0.78	0.78
Foreign Market Average Return (% per month)	1.67	2.34	0.71
Foreign Exchange Appreciation Rate (% per month)	0.66	1.02	0.17
Edison-Warnock Capital Control Measure (EWS)	0.36	0.58	0.00
Market Capitalization (millions $)	153.80	177.40	123.20
Dividend Yield (% per year)	1.95	1.71	2.45
Expense Ratio (% per year)	1.83	1.95	1.64
Institutional Ownership (%)	13.72	16.17	10.35
Age (years since IPO)	5.91	5.81	6.16

Table IV: Time Series Correlation of Premium, Illiquidity, and Control Variables

This table reports the average of the time series correlation between the fund premium (Premium), the share (lnUSIL) and the asset (lnCIL) market illiquidity, and control variables, which include US and foreign market index return (USMKT and CMKT), the foreign exchange appreciation rate (FXCHG), the Edison-Warnock measure of capital control (EWS), size (lnCAP), dividend yield (Divyld), expense ratio (ExpRatio), institutional ownership (InstOwn), the average fund premium across all funds which represents small investor sentiment (AVGPrem), and fund age (lnAge). The pairwise correlations reported here are obtained in two steps. The time series correlation between any two variables is calculated first for each fund, and then averaged across the 41 funds in the second step.

	lnUSIL	lnCIL	USMKT	CMKT	FXCHG	EWS	lnCAP	Divyld	ExpRatio	InstOwn	AVGPrem	lnAge
Premium	0.05	0.12	0.06	0.07	0.08	0.36	-0.06	0.09	0.21	-0.46	0.51	-0.34
lnUSIL		0.07	-0.06	-0.07	-0.09	0.29	-0.27	0.15	0.22	-0.17	0.04	-0.54
lnCIL			-0.04	-0.10	0.07	-0.20	-0.42	0.01	0.09	-0.20	-0.09	0.12
USMKT				0.39	-0.04	0.04	0.07	-0.02	-0.05	0.00	0.12	-0.02
CMKT					-0.04	0.02	0.13	-0.03	0.06	0.01	0.18	0.00
FXCHG						-0.01	-0.07	0.01	-0.04	0.00	-0.01	0.04
EWS							0.13	0.10	0.04	-0.28	0.50	-0.80
lnCAP								-0.03	-0.35	0.37	0.04	0.12
Divyld									-0.07	0.02	0.01	-0.05
ExpRatio										-0.37	0.09	-0.22
InstOwn											-0.24	0.38
AVGPrem												-0.58

Table V: Panel Data Regression of Fund Premium on the Share and the Asset Market Illiquidity (Raw Data)

This table reports the regression of fund premium on the share and the asset market illiquidity as well as other control variables by pooling all the funds together and using the fund fixed effect. The analysis is performed on raw data (i.e. data which is not detrended). Newey-West t-ratios reported in the bracket are adjusted for contemporaneous correlation, heteroscedasticity, and serial correlation with a lag of m = 4. The results are similar when m = 12 or m = 24.

	Raw Data											
Independent	All Funds				Segmented Market Funds				Integrated Market Funds			
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
lnUSIL	0.007	-0.013	-0.084	-0.040	-0.011	-0.031	-0.098	-0.067	0.028	0.012	-0.036	0.028
	[0.54]	[-2.69]	[-4.68]	[-3.50]	[-0.70]	[-3.80]	[-5.11]	[-4.30]	[2.50]	[2.38]	[-1.79]	[2.70]
lnCIL	0.013	0.027	0.016	0.019	0.013	0.033	0.022	0.023	0.011	0.016	0.006	0.012
	[1.52]	[3.96]	[2.12]	[2.89]	[1.12]	[3.89]	[2.26]	[2.65]	[3.18]	[5.65]	[1.44]	[3.62]
USMKT			0.115	0.080			0.158	0.124			-0.017	-0.025
			[1.40]	[1.97]			[1.61]	[1.68]			[0.17]	[-0.39]
CMKT			0.090	0.000			0.089	0.008			0.125	-0.028
			[1.80]	[0.00]			[1.65]	[0.20]			[1.91]	[-0.68]
FXCHG			0.298	0.280			0.304	0.273			0.105	0.191
			[4.22]	[4.38]			[4.30]	[4.19]			[1.08]	[2.49]
EWS			0.158	0.144			0.160	0.134				
			[5.54]	[5.07]			[4.89]	[4.20]				
lnCap			-0.017	-0.021			-0.028	-0.046			0.023	0.046
			[-0.67]	[-1.13]			[-1.06]	[-2.24]			[0.85]	[2.61]
Divyld			0.485	0.476			0.297	0.260			0.656	0.671
			[4.65]	[4.83]			[2.14]	[1.96]			[5.61]	[5.87]
ExpRatio			0.054	0.052			0.051	0.050			0.042	0.033
			[3.42]	[4.97]			[3.34]	[4.94]			[1.62]	[2.11]
InstOwn			-0.622	-0.539			-0.739	-0.632			-0.307	-0.280
			[-8.67]	[-10.68]			[-7.93]	[8.24]			[-3.77]	[4.75]
AVGPrem		1.112		0.850		1.338		0.850		0.799		0.945
		[33.75]		[15.76]		[21.69]		[11.01]		[13.60]		[13.46]
lnAge			-0.079	0.003			-0.089	-0.023			-0.076	0.029
			[-3.70]	[0.21]			[-3.81]	[-1.35]			[-2.82]	[1.88]
Fund Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R^2	36.3	50.6	57.7	62.8	34.9	50.0	60.6	64.3	33.4	51.6	47.2	60.5
$\bar{R}^2$	35.7	50.1	57.1	62.3	34.3	49.5	60.0	63.8	32.8	51.1	46.4	59.9
# of Observations	4652	4652	3960	3960	2847	2847	2416	2416	1805	1805	1689	1689

Table VI: Panel Data Regression of Fund Premium on the Share and the Asset Market Illiquidity (Detrended Data)

This table reports the regression of fund premium on the share and the asset market illiquidity as well as other control variables by pooling all the funds together and using the fund fixed effect. The analysis is performed on detrended data. Newey-West t-ratios reported in the bracket are adjusted for contemporaneous correlation, heteroscedasticity, and serial correlation with a lag of m = 4. The results are similar when m = 12 or m = 24.

	Detrended Data											
Independent	All Funds				Segmented Market Funds				Integrated Market Funds			
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
lnUSIL	-0.055	-0.002	-0.060	-0.005	-0.088	-0.032	-0.080	-0.030	-0.003	0.048	-0.024	0.033
	[-3.79]	[-0.27]	[-4.46]	[-0.51]	[-6.22]	[-4.64]	[-6.10]	[-2.27]	[-0.15]	[5.48]	[-1.43]	[3.48]
lnCIL	0.032	0.035	0.028	0.029	0.046	0.048	0.045	0.045	-0.002	0.000	-0.009	-0.006
	[3.36]	[4.31]	[3.02]	[3.70]	[4.30]	[5.44]	[4.19]	[4.71]	[-0.29]	[0.02]	[-1.52]	[-1.33]
USMKT			0.058	0.023			0.105	0.064			-0.030	-0.027
			[0.72]	[0.70]			[1.11]	[1.10]			[-0.31]	[-0.44]
CMKT			0.121	0.029			0.130	0.052			0.114	-0.039
			[2.79]	[0.99]			[2.93]	[1.64]			[1.88]	[-0.93]
FXCHG			0.287	0.282			0.289	0.273			0.113	0.210
			[4.61]	[4.56]			[4.58]	[4.26]			[1.12]	[2.84]
EWS			-0.062	-0.046			-0.063	-0.048				
			[-1.01]	[0.83]			[-1.06]	[-0.91]				
lnCap			0.016	0.012			0.018	0.012			0.007	0.021
			[0.83]	[0.92]			[0.84]	[0.74]			[0.24]	[1.24]
Divyld			0.467	0.410			0.258	0.242			0.782	0.594
			[3.92]	[3.74]			[1.92]	[1.88]			[5.55]	[5.01]
ExpRatio			0.030	0.023			0.041	0.034			0.033	0.020
			[1.73]	[1.76]			[2.47]	[2.69]			[1.12]	[1.09]
InstOwn			-0.434	-0.409			-0.481	-0.437			-0.336	-0.374
			[-7.43]	[-9.10]			[-6.07]	[-6.76]			[-5.08]	[-7.06]
AVGPrem		0.970		0.902		1.016		0.846		0.908		0.961
		[20.92]		[16.42]		[16.77]		[10.62]		[15.63]		[16.34]
Fund Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R^2	7.2	20.1	19.7	30.9	13.1	23.9	27.3	34.8	0.9	22.0	11.4	32.9
$\bar{R}^2$	6.3	19.4	18.7	30.0	12.2	23.1	26.2	33.8	0.0	21.3	10.2	31.9
# of Observations	4652	4652	3960	3960	2847	2847	2416	2416	1805	1805	1689	1689

Figure 1: Time Series of Average Fund Premium

This figure plots the average premium (AVGPrem) of closed-end country funds at the end of each month from August 1987 to December 2001.