Earnings Opacity and Closed-End Country Fund Discounts

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Abstract

Closed-end country funds are interesting in that they have two sets of prices for the same underlying assets – the net asset value (NAV) of the fund holdings as measured using the underlying firms' stock prices in their home markets and the fund price at which the fund trades on a U.S. stock exchange. Utilizing the theoretical framework of information asymmetry in two separate markets for an identical asset, we find that the difference between the fund's NAV and its trading price (i.e., the fund discount) is positively associated with the earnings opacity of the underlying companies. Such a positive association is consistent with the notion that U.S. investors face higher information acquisition and processing costs when compared with local investors and therefore earnings opacity exacerbates the information disadvantage of U.S. investors, leading to a larger fund price discount. We further show that the positive relation varies predictably with U.S. investors' information acquisition and processing costs and with the extent to which host stock markets are segmented from the U.S. market. Specifically, we find that the positive relation between earnings opacity and fund discounts is weaker for those funds with more U.S. cross-listings in fund holdings, with underlying companies following accounting standards similar to U.S. standards, and with less segmented local markets.

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1. Introduction

Prior literature suggests that, when investing in foreign equities, U.S. investors are at an informational disadvantage relative to their local peers because they incur higher information acquisition and processing costs (e.g., Brennan and Cao 1997; Choe, Kho, and Stulz 2005). These information costs include the time and effort associated with becoming familiar with the financial statements of foreign companies, interpreting the information, and acquiring private and public information from other sources for investment decisions (Indjejikian 1991; Beneish and Yohn 2008). In response to the information disadvantage relative to local investors, U.S. investors tend to underweight their investments in foreign firms. This "home bias" phenomenon has been extensively examined in the literature (Karolyi and Stulz 2003; Bradshaw, Bushee, and Miller 2004; Covrig, DeFond, and Hung 2007). Besides its impact on asset allocation, this information disadvantage could also lead U.S. investors to set lower prices for identical local assets as compared to local investors (e.g., Chan, Menkveld, and Yang 2008a). Our paper examines the role of earnings opacity (or inversely, earnings quality) in explaining the relative pricing of local assets by U.S. and local investors in the setting of closed-end country funds. Specifically, we ask two fundamental questions: First, how does earnings opacity of the underlying firms affect the pricing of closed-end country funds? Second, when does earnings opacity play a more or less significant role in explaining the fund pricing?

Closed-end country funds are investment companies that issue a fixed number of shares domestically and invest the proceeds primarily in the equity market of a single foreign "host" country. Compared with prior studies investigating U.S. investors' ownership in non-U.S. firms (e.g., Bradshaw et al. 2004), this study makes use of two sets of prices for the same underlying

foreign equities held by the funds.[1] The first set is the net asset value (NAV) of the fund holdings as measured using the underlying firms' stock prices in their home markets and the second set is the fund price at which the fund trades on a U.S. stock exchange. The fund's trading price and the fund's NAV are set by U.S. investors and local investors, respectively, for the same underlying assets. Prior studies have shown that closed-end fund prices are usually different from NAVs and that country funds typically trade at a discount (i.e., fund price is less than fund NAV) (Bodurtha, Kim, and Lee 1995; Chan, Jain, and Xia 2008b; Hwang 2011). As we argue below, closed-end country fund discounts provide a unique opportunity to gauge U.S. investors' pricing of the information asymmetry, exacerbated by the poor earnings quality of local firms, relative to local investors.

As an important component of public disclosures, a firm's accounting information helps to shape investors' expectation of future cash flows while poor accounting information (i.e., earnings opacity) results in investors' uncertainty about the firm's future performance (e.g., Bhattacharya, Daouk, and Welker 2003; Francis, LaFond, Olsson, and Schipper 2005). If investors differ in their ability to process accounting information or they incur different information processing costs, then poor earnings quality might result in differentially informed investors and thereby exacerbate the information asymmetry in financial markets (Diamond and Verrecchia 1991; Kim and Verrecchia 1994; Bhattacharya, Desai, and Venkataraman 2012a; Bhattacharya, Ecker, Olsson, and Schipper 2012b). U.S. investors of closed-end country funds

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[1] For completeness, the two assets (the underlying securities owned by the fund and the fund itself) are not exactly identical. As Lamont and Thaler (2003) discuss, one difference is that the portfolio manager of the fund charges a fee for his services and incurs other expenses, and thus the cash flows going to the holders of the fund are different from the cash flows going to the holders of the underlying assets. A premium could be justified if the closed-end fund manager has a superior stock picking ability. Alternatively, the fund may have access to securities that are difficult to buy elsewhere. Note that we control for fund fixed effects in one of our sensitivity analyses. Further, as Lamont and Thaler (2003) note, the literature has found little relation between fund discounts/premia and future fund returns.

rely on the same public financial reports of underlying firms as local investors do. So the existence of fund discounts is not driven by the public disclosure disparity originating from financial statements per se. Rather, we argue that poor earnings quality of local firms exacerbates the information disadvantage faced by U.S. investors relative to local investors. Specifically, compared with local investors, U.S. investors have to incur higher costs of acquiring and processing information to overcome the information uncertainty associated with poor earnings quality of local firms. Due to their lack of local knowledge, U.S. investors are less capable of overcoming the information uncertainty pertaining to the local firms than local investors are. Furthermore, U.S. investors have limited information channels through which they could gain access to potentially more precise private information about local firms (e.g., Beneish and Yohn 2008). As a result, U.S. investors would rely more on publicly disclosed earnings information to make investment decisions, implying that opaque earnings cause a higher level of information uncertainty for U.S. investors than for local investors.

Prior studies on international equity investments have shown that information disadvantage faced by foreign investors results in a discount on equity prices (Bailey and Jagtiani 1994; Domowitz, Glen, and Madhavan 1997; Chan et al. 2008a). In particular, Chan et al. (2008a) extend the Grossman and Stiglitz (1980) model of information asymmetry to a setting of two separate markets for an identical asset, whereby local investors trade in the domestic share market and foreign investors trade in the foreign share market. They show analytically and empirically that foreign share prices are discounted from the prices of domestic shares and the discounts are positively correlated with the extent of the information disadvantage faced by foreign investors. Extending Chan et al.'s analytical reasoning to the setting of closed-end country funds, we hypothesize that the opaqueness of underlying firms' earnings causes a greater

information disadvantage for U.S. investors, which in turn leads to a larger fund price discount to the fund NAV for a closed-end country fund. Therefore, in our primary hypothesis, we posit that higher earnings opacity of the individual firms in the funds' holdings is associated with larger fund discounts.

The setting of closed-end country funds also allows us to test whether the relation between fund discounts and earnings opacity varies systematically with U.S. investors' information acquisition and processing costs, and the accessibility of alternative information channels to U.S. investors. Specifically, we hypothesize that the positive relation is weakened when a fund holds a higher percentage of firms that are cross-listed as American Depositary Receipts (ADRs) in U.S. markets, and when a host country has a higher accounting convergence with the U.S., as proxied for by the host country's use of International Financial Reporting Standards (IFRS). Finally, we argue that market segmentation between the host and U.S. stock markets implies higher information acquisition and processing costs and limited information sources available to U.S. fund investors. Accordingly, we predict a less pronounced positive association between earnings opacity and closed-end fund discounts for country funds that invest in less segmented (or more financially integrated) host markets.

To test these hypotheses, we follow Bhattacharya et al. (2003), who develop earnings opacity measures (based on earnings aggressiveness, smoothing, and loss avoidance) for companies around the world, and apply the same method to the underlying firms of each fund. This procedure creates fund-specific measures of earnings opacity. We hand-collect the quarterly fund holdings from the Capital IQ database, obtain financial data for the individual underlying firms by manually matching our firms with companies in the Worldscope database, and get fund prices and fund NAVs from the CRSP/COMPUSTAT merged database. Based on 35,588 firm-

quarter observations of underlying firms, we develop fund-level measures of earnings opacity for a sample of 804 fund-quarter observations. Our sample, consisting of 36 unique closed-end country funds between 2004 and 2010, and covering 21 countries, provides a well-diversified international setting.

In our empirical analyses, we find that our measures of earnings opacity are all positively associated with closed-end country fund discounts. These findings are in line with our primary hypothesis. This positive association is both statistically significant and economically meaningful. Consistent with our prediction that the positive relation between fund discounts and earnings opacity should be weaker (stronger) when the information acquisition and processing costs are lower (higher) for U.S. investors, we show that the positive relation is weakened when a fund holds a higher percentage of firms that are cross-listed as American Depositary Receipts (ADRs) in U.S. markets, and when a host country has adopted IFRS. Finally, and in line with our prediction, we find that the association between earnings opacity and discounts is weaker when the local capital market is less segmented for U.S. investors.

Our conclusions are robust to the inclusion of numerous fund- and country-specific control variables, country and quarter fixed effects, an alternative specification with fund fixed effects, and to the use of alternative earnings opacity and information cost proxies. Importantly, to further ensure that omitted correlated variables are not affecting the inferences, we rerun the analyses using a changes specification and our conclusions remain unchanged.

Our study makes two major contributions. First, most studies on U.S. investment in foreign firms focus on how the information disadvantage of U.S. investors affects their portfolio *allocation* choices (e.g., Bradshaw et al. 2004; Covrig et al. 2007). To our knowledge, very few studies examine the effect of such an information disadvantage on equity *prices*. Motivated by

the theoretical framework of information asymmetry in two separate markets for an identical asset (Grossman and Stiglitz 1980; Chan et al. 2008a), our findings suggest that U.S. investors require greater fund price discounts in response to the information disadvantage relative to their local peers. More importantly, we extend the international equity investment literature by showing that the earnings opacity of local firms could exacerbate the information disadvantage of U.S. investors, resulting in a larger fund price discount. Thus, our findings imply that enhancing the quality of local firms' public disclosure can help mitigate foreign investors' concern about their information disadvantage relative to local investors.

Second, although existing studies offer several explanations for closed-end fund discounts, there are no prior studies linking the accounting quality of funds' underlying firms with closed-end fund discounts. Based on the reasoning of the information disadvantage of U.S. investors vis-à-vis local investors, we contribute to the closed-end fund literature by showing that the earnings opacity of individual firms in the funds' holdings is positively related to closed-end country fund discounts.

The next section reviews the related literature and develops the hypotheses. Section 3 describes the sample selection and research method. Section 4 reports the empirical results. Section 5 presents additional analyses and Section 6 concludes.

2. Literature Review and Hypotheses Development

2.1 Closed-End Country Funds

Closed-end country funds are investment companies that issue a fixed number of shares domestically and invest the proceeds in the equity markets of select foreign "host" countries.[2] The shares of these funds are traded on a stock exchange at market-determined prices and generally cannot be redeemed by shareholders at their NAVs.[3]

Each fund provides two distinct market-determined prices: (1) the country fund's share price quoted on the market where it is traded (e.g., NYSE) and (2) its NAV determined by the stock prices of the underlying firms' shares in the host market. It is well known that the share prices and the NAVs of closed-end country funds tend to differ, commonly resulting in a fund discount (i.e., the NAV exceeds the fund share price). Prior literature suggests that such discounts persist because arbitrage is costly and, therefore, not always profitable (e.g., Pontiff 1995). Researchers have attributed this price difference to the following five broad factors: (1) the loss of tax timing options (Brickley, Manaster, and Schallheim 1991; Kim 1994); (2) bias in net asset value, caused by overhanging tax liabilities (Malkiel 1977; Day, Li, and Xu 2011) and the liquidity of the underlying firms' shares (Chan et al. 2008b; Cherkes, Sagi, and Stanton 2009); (3) agency costs, including excessive management fees (Malkiel 1977) and inferior managerial performance (Chay and Trzcinka 1999; Berk and Stanton 2007); (4) the existence of market segmentation (Bonser-Neal, Brauer, Neal, and Wheatley 1990; Nishiotis 2004); and (5) behavioral explanations, including investor sentiment and the presence of noise traders (Lee, Shleifer, and Thaler 1991; Hardouvelis, La Porta, and Wizman 1994; Bodurtha et al. 1995;

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[2] Dimson and Minio-Paluello (2002) provide an overview of the literature on closed-end funds.
[3] Country funds allow participation in foreign markets via a managed portfolio, with low transaction costs and no need to use foreign exchange for settlement purposes. These funds also avoid testing the liquidity of the often thin host market as they do not allow the redemption of shares.

Klibanoff, Lamont, and Wizman 1998; Hwang 2011). Similar to previous studies on closed-end funds, we account for these potentially confounding factors in our empirical analyses.

2.2 Earnings Opacity, Information Costs, and Closed-End Country Fund Discounts

A number of studies document that geographic proximity provides local investors with an information advantage over non-local investors (Coval and Moskowitz 2001; Baik, Kang, and Kim 2010). The existence of a local information advantage also extends to an international setting as the literature shows that domestic investors have a local information advantage over foreign investors with respect to domestic stocks (Brennan and Cao 1997; Choe et al. 2005). Such an information advantage of local investors could arise from factors including frequent access to the local company's operation, close communication with employees, managers, and suppliers, an ability to evaluate the local market conditions in which the firm operates, and obtaining information from local media. Compared with local investors, foreign investors are at an information disadvantage (Bradshaw et al. 2004; Aggarwal, Klapper, and Wysocki 2005; Covrig et al. 2007; DeFond, Hu, Hung, and Li 2011). This disadvantage is amplified by market segmentation and geographical distance (Frankel and Schmukler 2000; Chan, Covrig, and Ng 2005; Froot and Ramadorai 2008).

The accounting literature has shown that accounting information helps to shape investors' expectations of a firm's future cash flow streams, while poor earnings quality contributes to investors' uncertainty about a firm's future performance (Bhattacharya et al. 2003; Francis et al. 2005). If investors differ in their ability to process accounting information or if they incur different information processing costs, then poor earnings quality might result in differentially informed investors and thereby exacerbate the information asymmetry in financial markets

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(Diamond and Verrecchia 1991; Kim and Verrecchia 1994; Bhattacharya et al. 2012a, 2012b). In the setting of closed-end country funds, U.S. and local investors are provided with the same public disclosures of underlying firms. We expect that poor earnings quality exacerbates information disadvantage faced by U.S. investors relative to local investors, for the following three reasons. First, as argued above, it is more costly for U.S. investors to acquire and process information about local firms (Choe et al. 2005; Beneish and Yohn 2008). When faced with poor accounting disclosures, U.S. investors have to incur higher costs to overcome the uncertainty about local firms' future cash flows than local investors do. Second, besides the access to private information, local investors may take advantage of their superior ability to interpret public disclosures of local firms (Dumas, Lewis, and Osambrela 2011). In this case, opaque accounting information increases U.S. investors' costs to process value-relevant information. Third, local investors may have easier access to private information while U.S. investors are restrained by limited information channels. As a result, U.S. investors rely more on the publicly disclosed information about local firms to make investment decisions (Brennan and Cao 1997; Brennan, Cao, Strong, and Xu 2005), implying that opaque earnings of local firms cause more uncertainty for U.S. investors than for local investors.

Several studies on international equity investments have shown that the information disadvantage faced by foreign investors results in a discount on equity prices (Bailey and Jagtiani 1994; Domowitz et al. 1997; Chan et al. 2008a). In particular, Chan et al. (2008a) extend the Grossman and Stiglitz (1980) model of information asymmetry to a setting of two separate markets for an identical asset, whereby local investors trade in the domestic share market and foreign investors trade in the foreign share market. In their model, foreign investors are aware that they are generally less informed than local investors, so they set a lower foreign share price

to compensate for the information disadvantage. Chan et al. (2008a) show analytically that the extent of information disadvantage faced by foreign investors explains a significant portion of the variation in the foreign share price discounts. Their empirical findings in the setting of Chinese local A- and foreign B-share markets are consistent with the theoretical implication. However, the source of variation of information asymmetry between foreign and local investors is not specified in Chan et al.'s model. We identify the cross-sectional variation of local firms' earnings quality as one explicit source for the information disadvantage faced by foreign investors relative to local investors, allowing U.S. investors to be subject to different levels of information disadvantage as compared to local investors. Extending Chan et al.'s analytical reasoning to the setting of closed-end country funds, we expect that the opaqueness of underlying firms' earnings information will cause a larger information disadvantage for U.S. investors, which in turn leads to a larger fund price discount for a closed-end country fund.

We adopt measures of earnings opacity as empirical constructs of poor accounting quality that have been prevalently used in international settings.[4] International firms generally have higher earnings opacity than U.S. firms (Bhattacharya et al. 2003; Leuz, Nanda, and Wysocki 2003).[5] These prior studies also show a wide variation in earnings opacity among international firms. Combined, our focus of closed-end country fund involving international firms provides us with a powerful setting to test the relation between closed-end fund discounts and fund-level earnings opacity. We expect that higher levels of earnings opacity (i.e., lower earnings quality of

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[4] Our usage of earnings opacity is consistent with the empirical studies cited earlier as well as other studies on international firms, including Leuz, Lins, and Warnock (2009), Lau, Ng, and Zhang (2010), Boulton, Smart, and Zutter (2011), and Lang, Lins, and Maffett (2011).
[5] Specifically, Bhattacharya et al. (2003) show that the United States has the lowest earnings opacity among 34 countries. Similarly, Leuz et al. (2003) conclude that the United States has the lowest aggregate earnings management rank score among 31 countries.

the individual underlying firms in a fund portfolio) lead to greater closed-end country fund discounts. Our first hypothesis is formally stated as follows:

H1: The discount for a closed-end country fund is positively associated with the fund-level earnings opacity.

2.3 Effects of Information Acquisition and Processing Costs

The hypothesized positive relation (H1) between fund discounts and earnings opacity is built on the assumption of the information disadvantage faced by U.S. investors, stemming from their higher information acquisition and processing costs, lower information processing abilities, and limited information channels when compared with local investors. Therefore, the strength of the positive relation in H1 is expected to vary with characteristics of the underlying local firms and the local markets. For example, when U.S. fund investors face lower information acquisition and processing costs, the link between fund-level earnings opacity and fund discounts is expected to be weaker. Stated differently, we predict that the positive association between earnings opacity and fund discounts should be weaker when U.S. investors face lower additional costs to overcome uncertainty caused by earnings opacity of the underlying firms. The evidence, if consistent with our prediction, will add further credence to our main arguments in H1.

We first consider the characteristics of the underlying firms in fund portfolios. Prior studies show that U.S. investors have greater holdings in firms cross-listed on U.S. stock exchanges than in other foreign firms (Ahearne, Griever, and Warnock 2004; Ammer, Holland, Smith, and Warnock 2012). We use the foreign firms' cross-listing on U.S. stock exchanges to proxy for the lower information acquisition and processing costs for U.S. investors because U.S.

investors have more chances to directly communicate with cross-listed firms' managers and to attend these firms' public events, which helps to reduce the uncertainty about financial reports at a lower cost. Following Bradshaw et al. (2004) and Covrig et al. (2007), we consider the ADR listing status as a proxy for the easier information access for U.S. investors. Overall, we expect that U.S. investors face lower information costs for country funds with a higher percentage of fund holdings in cross-listed foreign firms. Such a lower information cost implies a weaker link between fund discounts and fund-level earnings opacity.

With respect to the potential impact of using international accounting standards on U.S. investors' information costs, prior studies show that different financial reporting standards increase information processing costs for foreign investors (e.g., Covrig et al. 2007). These findings suggest that foreign investors are more likely to understand and interpret accounting information if firms employ standards that are more familiar to them. Bae et al. (2008) conclude that IFRS are quite similar to U.S. GAAP.[6] Besides the similarity between IFRS and U.S. GAAP, the enhanced comparability of accounting standards through the adoption of IFRS also improves the overall quality of firms' information environment. Specifically, Barth et al. (2012) show that the use of IFRS by non-U.S. firms results in accounting information more comparable to that of U.S. firms. As shown in De Franco et al. (2011), a higher level of financial statement comparability lowers the cost of acquiring information and increases the overall quantity and quality of information available to market participants about the firms. Based on these arguments, we expect that the use of IFRS by a host country will reduce U.S. investors' information

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[6] Specifically, Bae et al. (2008) estimate the convergence value between the two accounting standards to be 0.809. According to Bae et al. (2008), U.S. GAAP and IFRS are consistent in 17 out of 21 accounting items for their first "GAAP difference" measure (i.e., the convergence value = 0.809), and consistent in 47 out of 52 accounting areas for their second "GAAP difference" measure (i.e., the convergence value = 0.904).

acquisition and processing costs. In summary, our second hypothesis is formally stated as follows:

H2a: The positive relation between fund discounts and earnings opacity is weaker for closed-end country funds that hold a higher percentage of firms cross-listed on U.S. stock exchanges.

H2b: The positive relation between fund discounts and earnings opacity is weaker for closed-end country funds that hold stocks from a country that has adopted IFRS.

2.4 Effects of Market Segmentation

Global capital markets are segmented, to some extent, due to a variety of market imperfections (Harvey 1995; Foerster and Karolyi 1999; Hail and Leuz 2006). The consequence of such market segmentation is that the less accessible foreign markets tend to be under-researched and less regulated (Frankel and Schmukler 2000). U.S. investors are therefore subject to additional information costs when tapping into these segmented markets. Following the same arguments as for our second hypothesis, we expect that a lower extent of market segmentation results in a less pronounced positive association between fund discounts and earnings opacity.

Beyond the additional information costs, market segmentation also suggests a lack of alternative information channels, which in turn makes public financial disclosure relatively more important as an information source (Feroz and Wilson 1992).[7] Therefore, we predict that a higher degree of market segmentation for local stock markets makes the financial reporting quality of local firms more critical in alleviating the information disadvantage of U.S. investors. This, in

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[7] Feroz and Wilson (1992) show that financial reporting measures are more strongly associated with net interest cost of bonds in more segmented regional markets than they are in the more uniform national market.

turn, suggests a weaker association between fund discounts and earnings opacity for closed-end country funds with less segmented (or more financially integrated) local markets. Our final hypothesis is formally stated as follows:

H3: The positive relation between fund discounts and earnings opacity is weaker for closed-end country funds which invest in less segmented host stock markets.

3. Sample Selection and Research Design

3.1 Sample Selection and Data Sources

We hand-collect quarterly fund holdings from the Capital IQ database starting from 2004. The individual underlying firms are *manually* matched with the Worldscope database to obtain their financial data.[8] We further require fund prices and NAVs from the CRSP/COMPUSTAT merged database, dividend yields from COMPUSTAT, and institutional holding data from Thomson Reuters. We also hand-collect other fund-level variables from the funds' annual and semi-annual reports, including information on unrealized long-term capital gains and fund managers' ownership of fund shares. In addition, we hand-collect active and inactive (levels 2 and 3 exchange-listed) ADRs from the ADR databases provided by Citibank and JP Morgan. We collect IFRS adoption timing from the website maintained by Deloitte Global Services Limited (www.IASPLUS.com).

Country-level variables are obtained from the following sources: (1) survey data for the country's popularity from Gallup surveys through the iPOLL databank; (2) index of investment

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[8] For our fund-quarter observations, on average we can match 95% of the underlying firms with the Worldscope firm records. The median matching rate is 97%. All our conclusions are similar after deleting those fund-quarters with a matching rate below 50% (i.e., a loss of 67 fund-quarters).

freedom from the Heritage Foundation; (3) U.S. and local market indices, relative market liquidity, and foreign exchange rates from Datastream; (4) country-level disclosure indices and GDP growth from World Development Indicators (as developed by The World Bank); (5) protection of minority shareholders' interests from the Global Competitiveness Report (as offered by The World Economic Forum); and (6) the cost of tax compliance from the Economic Freedom of the World Reports.

Our final sample consists of 804 fund-quarter observations from 2004 to 2010, comprising 36 unique closed-end country funds covering 21 countries.[9] Table 1 provides the list of countries and country funds in our sample. We also present the country-level variables in Table 1. The fund-level earnings opacity measures are based on 35,588 underlying firm-quarter observations (4,159 unique firms) in the fund holdings.[10]

3.2 Measure of Closed-End Country Fund Discounts

Following prior literature (e.g., Bodurtha et al. 1995), for each fund quarter, we define the quarterly fund discount (premium) as the average of the three monthly fund discounts (premiums) over the quarter.[11] Specifically, we calculate the monthly closed-end fund discount (premium) using closing fund prices (*Price*) and *NAV*s:

$$Discount\ (Premium)_{i,t} = -\frac{(Price_{i,t} - NAV_{i,t})}{NAV_{i,t}}$$

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[9] Three funds in our sample were liquidated prior to 2010. As a robustness check, we remove the last four quarters' observations of these three funds and find that our inferences remain the same.

[10] We cover the universe of U.S. closed-end country funds available during our sample period. The sample size is comparable to that of recent closed-end country fund studies, such as Chan et al. (2008b) and Hwang (2011).

[11] Results are similar and no inferences are affected if we use the quarter-end fund discount instead.

where *Price* is the fund closing price at the end of month *t* and *NAV* is the fund's net asset value at the end of month *t*. A higher value suggests a larger fund discount.

3.3 Measures of Fund-Level Earnings Opacity

Similar to prior cross-country studies such as Bhattacharya et al. (2003) and Leuz et al. (2003), we employ three measures of earnings opacity used extensively in prior research as well as an aggregate measure. The use of multiple earnings opacity measures helps mitigate the possibility that one particular proxy captures some factor other than earnings opacity.[12] We calculate fund-level earnings opacity for each quarter using all firms in the quarterly fund holdings, combined with the most recently available accounting data (i.e., prior-year's financial data).

The first measure is earnings aggressiveness (*Aggressive*) as developed by Dechow, Sloan, and Sweeney (1995), Leuz et al. (2003), and Bhattacharya et al. (2003). Specifically, using balance sheet and income statement information, we compute scaled accruals as a proxy for individual firms' earnings aggressiveness.[13] We define earnings aggressiveness for each underlying firm as:

$$Aggressive_{k,t} = (\Delta CA_{k,t} - \Delta CL_{k,t} - \Delta CASH_{k,t} + \Delta STD_{k,t} - DEP_{k,t} + \Delta TP_{k,t}) / TA_{k,t-1}$$

where

$\Delta CA_{k,t}$	=	Change in total current assets for firm *k* from year *t*-1 to year *t*
$\Delta CL_{k,t}$	=	Change in total current liabilities for firm *k* from year *t*-1 to year *t*
$\Delta CASH_{k,t}$	=	Change in cash for firm *k* from year *t*-1 to year *t*

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[12] In additional analyses (Section 5.2) we consider an alternative earnings opacity measure as well as a value-relevance measure.
[13] To be precise, we do not use information from the cash flow statement because of differences in the availability and presentation of cash flow information across countries and time. In fact, many of our sample countries did not require the preparation or presentation of a statement of cash flows.

$\Delta STD_{k,t}$	=	Change in current portion of long-term debt included in total current liabilities for firm k from year t-1 to year t
$DEP_{k,t}$	=	Depreciation and amortization expense for firm k at year t
$\Delta TP_{k,t}$	=	Change in income taxes payable for firm k from year t-1 to year t
$TA_{k,t-1}$	=	Total assets for firm k at year t-1[14]

In our tests, we use the median value of earnings aggressiveness for all underlying firms in a fund's holding as a proxy for the fund's earnings aggressiveness (*Aggressive*), with a higher value of *Aggressive* representing a higher level of earnings opacity.[15]

Our second measure of earnings opacity is earnings smoothing (*Smooth*). The idea is that (excessive) smoothing allows earnings to obscure the underlying volatility of the firm's economic performance, thus increasing earnings opacity. Following Bhattacharya et al. (2003) and Leuz et al. (2003), we define *Smooth* as the Spearman correlation between the change in accruals and the change in cash flow from operations (both scaled by lagged total assets) for all firms in the fund holding. Cash flow from operations is calculated as operating income minus accruals. A more negative correlation suggests a higher likelihood that earnings smoothing is obscuring the variability in the underlying firms' economic performance, thus resulting in greater earnings opacity (e.g., Lang et al. 2011). In our tests, we multiply the correlation by -1 so that a higher value of *Smooth* represents greater earnings opacity.

Our third measure of earnings opacity is loss avoidance (*Avoid*). The fact that many underlying firms report small positive earnings numbers but few firms report small negative earnings numbers is indicative of underlying firms attempting to avoid losses. Following Burgstahler and Dichev (1997), Leuz et al. (2003), and Bhattacharya et al. (2003), we define

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[14] Following Bhattacharya et al. (2003) and Leuz et al. (2003), we exclude the changes in short-term debt from accruals because they relate to financing transactions as opposed to operating activities. If a firm does not report information on taxes payable or the current portion of long-term debt, the change in either variable is assumed to be zero.

[15] Our conclusions are unaltered if we use either the value-weighted or equal-weighted mean value (rather than median value) of the underlying firms' accruals as the fund's measure of earnings aggressiveness.

Avoid for a fund quarter as the number of underlying firms with small positive earnings minus the number of underlying firms with small negative earnings, scaled by the total number of underlying firms in the quarterly fund holding. Small positive earnings (small negative earnings) are defined as net income scaled by lagged total assets between 0 and 1% (between -1% and 0%). The higher this ratio is, the higher is the loss avoidance for the fund quarter.

Finally, we adopt an aggregate earnings opacity measure which has the potential to mitigate the possible measurement errors in the individual measures. Specifically, following Biddle, Hilary, and Verdi (2009) and Chen, Hope, Li, and Wang (2011), we normalize the above three individual proxies and take the average of the three normalized measures as our aggregate measure of earnings opacity (*Aggregate*).[16]

3.4 Empirical Models

Consistent with Chan et al. (2008b) and Hwang (2011), we test H1 by estimating the following fund discount model:

$$Discount_{i,t} = \beta_0 + \beta_1 Opacity_{i,t} + \beta_n Controls_{i,t} + \varepsilon_{i,t} \tag{1}$$

where:

$Discount_{i,t}$	=	Quarterly closed-end country fund discounts for fund i in quarter t
$Opacity_{i,t}$	=	Earnings opacity including the following four measures: (1) Earnings aggressiveness (*Aggressive*), (2) Earnings smoothing (*Smooth*), (3) Loss avoidance (*Avoid*), and (4) An aggregate measure, which is the average of the normalized values of the former three individual earnings opacity measures (*Aggregate*)

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[16] Note that 13 fund-quarter observations from the Turkey Investment Fund and Japan Smaller Capitalization Fund have only one or two underlying firms in their portfolios. Thus, these observations are removed from the sample when calculating *Smooth* and *Aggregate*. Therefore, we have a total sample of 791 fund quarters using *Aggregate*.

The Appendix provides detailed definitions of the control variables as introduced below. We winsorize all variables, except indicator variables and country-level variables, at the 1% and 99% levels.[17]

Note that our sample includes multiple quarterly observations from the same funds. To mitigate any dependence issues, we include quarter fixed effects to control for time-related factors. Furthermore, standard errors are clustered by fund to mitigate cross-sectional correlations. In untabulated analyses, we first rerun the regressions employing two-way clustering by both fund and quarter. Second, we cluster standard errors by country. Third, we employ Newey-West standard errors. All our conclusions remain unchanged with these alternative standard error adjustments. Finally, we employ an alternative and rather conservative approach and include only one quarterly observation per year in the regressions. Again, inferences are unaffected.

We employ country fixed effects to control for unknown host-country related factors. Including country fixed effects is a common approach to controlling for country-specific effects and addressing correlated omitted country-level variable problems (e.g., Gelos and Wei 2005; Doidge, Karolyi, and Stulz 2007). As explained further below, in contrast to most prior research, we additionally have data on *time-varying* country-level variables.[18] This data allows us to include *both* country fixed effects and specific country controls in the same regressions. We explain our extensive set of control variables in the following sections.

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[17] No inferences are affected if we do not winsorize the variables.

[18] *All* country controls discussed below other than *Concentr* (which is a fixed value) are time varying.

Other determinants of closed-end fund discounts

Tax timing constitutes one potential explanation of the closed-end fund discount. It refers to investors' opportunity to minimize their tax liabilities through carefully timing their stock transactions (Brickley et al. 1991). Following prior studies (Brickley et al. 1991; Kim 1994), we control for the weighted average return volatility of a fund's underlying stocks (*Volatility*).

A second explanation of the discount is that the fund's NAV may be overestimated. Tax liabilities relating to unrealized capital gains (Malkiel 1977) and illiquid assets in host markets (Chan et al. 2008b; Hwang 2011) are considered important causes of this miscalculation. Consequently, in our regressions we include unrealized capital gains (*Gains*) and the relative liquidity of the U.S. versus the local market (*Turnover*).[19]

A third explanation relates to agency costs, where excessive management fees (Malkiel 1977), inadequate management performance (Chay and Trzcinka 1999; Berk and Stanton 2007), and the concentration of managerial stock ownership could all lead to closed-end fund discounts (Barclay, Holderness, and Pontiff 1993). Thus, we include the fund's expense ratio (*Expense*), past NAV returns (*CNAV*), and an indicator of managerial stock ownership (*DMOwn*) as control variables. In addition, following Day et al. (2011), we control for the fund's dividend yield (*Div*).

Fourth, international market segmentation may contribute to the difference between fund prices and NAVs (Bonser-Neal et al. 1990). We control for the extent of market segmentation by including the index of investment freedom of individual host countries (*Integrate*). These annual

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[19] Alternatively, we separately control for fund liquidity and the average stock liquidity of underlying firms. All inferences are unchanged.

data are from the Heritage Foundation and a higher value of *Integrate* represents greater financial integration.[20]

Fifth, we control for investor sentiment in terms of each country's popularity among Americans (*Popularity*). Hwang (2011) shows that a country's popularity among Americans affects U.S. investors' demand for securities from that country and causes stock prices to deviate from their fundamental values. Following Hwang (2011), we construct a Country Popularity Score by multiplying the percentage of survey participants (from Gallup survey data) who respond very favorably by four, mostly favorably by three, mostly unfavorably by two, and very unfavorably by one, and adding these four numbers into one cumulative score. In addition, we include two variables to control for market risk factors in the U.S. and foreign markets. For the U.S. market factor (*USMkt*) we use the concurrent quarterly change in the Dow Jones Industrial Average index, while the foreign market factor (*FMkt*) is proxied by the concurrent quarterly change in the market index of the local market. Hwang (2011) suggests that these market risk factors measure general demand effects in the home and U.S. markets.

Finally, we include these additional fund-specific control variables: institutional ownership in a particular fund (*Inst*), the fund's market capitalization (*Size*), and fund age (*Age*).

Other country-level control variables

Based on findings in previous studies, we also control for a number of time-varying country-level variables in the regressions. First, we include the foreign exchange appreciation rate (*Fxchg*), measured as the concurrent quarterly change in the foreign exchange rate between

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[20] Alternatively, we use another time-varying annual index of financial integration from Chinn and Ito (2008), which was updated to 2010 by the authors and made available to us at our request. All inferences are unchanged.

the U.S. dollar and the local currency. Second, we follow Bhattacharya et al. (2003) and employ the GDP growth rate (*GDPGrowth*) of the foreign economy because a country fund's level of accruals could be mechanically related to that country's GDP growth rate. Furthermore, motivated by Andrade and Chhaochharia (2010) we control for financial development (*FinDev*) of host countries (proxied by equity market capitalization). To capture variations in information disclosure beyond those stipulated in the accounting rules and practice, we control for a country-level disclosure index (*Disclosure*), which is a survey-based proxy for the quality of disclosure as reported in the World Bank's World Development Indicators.

Leuz et al. (2003) and Haw, Hu, Hwang, and Wu (2004) show that earnings management is more pervasive in countries with weak investor protection, and prior literature suggests that U.S. investors are more reluctant to invest in countries with poor investor protection (e.g., Dahlquist, Pinkowitz, Stulz, and Williamson 2003; Ferreira and Matos 2008; Leuz et al. 2009). Based on these findings, we control for country-level investor protection (*Protection*), using data from the Global Competitiveness Report issued by The World Economic Forum, which reflects the extent to which interests of minority shareholders are protected. Similarly, we also control for country-level ownership concentration (*Concentr*). Finally, we include the cost of tax compliance (*TaxComp*) in host markets with data from the Economic Freedom of the World Reports.

We test H2-H3 using the following model:

$$Discount_{i,t} = \beta_0 + \beta_1 Opacity_{i,t} + \beta_2 InfoCost_{i,t} + \beta_3 Opacity \times InfoCost_{i,t} + \beta_n Controls_{i,t} + \varepsilon_{i,t} \qquad (2)$$

In Eq. (2), we include an information cost variable (*InfoCost*) and the interaction term of the information cost variable with *Opacity*. The information cost variables consist of: (1) an indicator variable for U.S. cross-listing (*DADR*), which equals one when the percentage of fund

holdings of firms cross-listed in the U.S. (i.e., ADR firms) is above the sample median (zero otherwise);[21] (2) an indicator variable for IFRS (*DIFRS*), which equals one if host countries employ IFRS (zero otherwise); and (3) an indicator variable for financial integration (*DIntegrate*) (or inversely, market segmentation), which equals one when the investment freedom index value is above the sample median (zero otherwise).

4. Empirical Results

4.1 Descriptive statistics

Table 2 presents firm characteristics of the underlying firms in the country fund holdings. For comparison, we also report the firm characteristics of all local firms for that country in the Worldscope universe. Across all the sample countries, firms in the closed-end country fund portfolios have a higher mean or median value of market capitalization and return on assets than the full sample of firms from that country in the Worldscope database. This descriptive evidence is consistent with Covrig, Lau, and Ng (2006), who find that closed-end country funds tend to invest in large and well-performing firms.

Table 3, Panel A presents descriptive statistics for all variables.[22] The mean (median) closed-end country fund discount for our sample is 6.0% (8.3%), close to the average discount of 6.4% as reported by Chan et al. (2008b) for an earlier sample period (1987-2001). On average, the fund expense ratio is 1.7%, and the dividend yield is 2.4% across the 36 funds. Unrealized capital gains over the fund's net asset values have a mean (median) value of 24.8% (26.3%). The

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[21] Our sample closed-end country funds have a median percentage holding of 17.8% of firms that are cross-listed in the U.S.

[22] Untabulated statistics show that the sample firms span all of Worldscope's 25 industry groups and that there is no strong industry concentration in the sample. Specifically, the number of industries for our quarterly fund portfolios has a mean (median) of 11.8 (12.0), suggesting a fairly diversified industry composition for the country fund observations.

average fund age is 17 years. These funds have an average market capitalization of $284.5 million and institutional ownership of 19.2%. The average relative liquidity of the U.S. market versus the local market is 1.57. Our measures of earnings opacity show a mean value of 0.004 for the aggregate measure (*Aggregate*), -0.036 for earnings aggressiveness (*Aggressive*), 0.059 for loss avoidance (*Avoid*), and 0.818 for earnings smoothing (*Smooth*).

Panel B presents the Pearson correlations among these variables. Consistent with H1, this table shows positive and statistically significant correlations between the fund discounts and all four measures of earnings opacity.

4.2 Results for H1

Panel A of Table 4 presents statistics of fund discounts sorted on earnings opacity. The panel shows the mean and median values of fund discounts across quartiles of the opacity measures. For all four opacity proxies, we find that fund discounts increase across the quartiles of earnings opacity. For example, using *Aggregate*, the average value of the discount increases from 0.035 in the first quartile to 0.075 in the fourth quartile, with the difference being statistically significant at the 1% level. In summary, the univariate tests in Panel A support H1 that fund discounts are positively correlated with earnings opacity.

Panel B reports the results of multivariate analyses that control for other variables which could affect fund discounts. The adjusted R^2 of the models ranges between 0.332 and 0.388 for Models (1) - (4) using the four measures of earnings opacity. Consistent with Chan et al. (2008b), we find that the fund discount is negatively related to the overall market trends of U.S. and foreign markets (*USMkt* and *FMkt*) and positively associated with institutional ownership (*Inst*) and underlying stock volatility (*Volatility*). The results also show a lower fund discount for funds

with higher dividend yields (*Div*), consistent with the findings in Hwang (2011). Moreover, a positive coefficient on *Integrate* is consistent with our expectation of lower fund discounts when a host market is more segmented.

More importantly, all four earnings opacity proxies are positively associated with the fund discount at a significance level of 0.05 or better (using two-tailed tests) after controlling for an extensive set of factors motivated by prior research. In addition to being statistically significant, the positive relation is also economically meaningful. Focusing on *Aggregate*, when moving from the median to the third quartile of *Aggregate* (while holding other variables constant), the fund discount increases by 1.25%, which is approximately 20.8% (15.0%) of the mean (median) of fund discounts. In addition, an untabulated analysis reveals that the incremental adjusted R^2 due to *Aggregate* is 4.4%. These results suggest that U.S. investors take into account their information disadvantage, as aggravated by opaque accounting information, in their pricing of fund shares by setting a lower fund price relative to the fund's NAV.

As described above, given that our empirical model includes time-varying country-level control variables, we can *simultaneously* include these controls and country fixed effects. We assess the impact of different combinations of country controls in Models (4) – (6). Model (4) includes the specific country controls but excludes country fixed effects; Model (5) employs only country fixed effects; and Model (6) has both sets of control variables.[23] For all three models, the coefficient estimate for *Aggregate* is virtually identical and is statistically significant. We further note the significant increase in explanatory power when both specific country controls and country fixed effects are included (i.e., an increase in adjusted R^2 of about five percentage points).

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[23] Country-level ownership concentration (*Concentr*) is a fixed value for every country; hence we exclude this variable when country fixed effects are included.

Based on this finding, in the following sections we only present results that include both time-varying country-level variables and country fixed effects.

4.3 Results for H2-H3

Table 5 reports the results for the tests of H2-H3 using *Aggregate* as the earnings opacity proxy. In Model (1), we use the fund holdings of U.S. cross-listed firms to proxy for the lower costs for fund investors to acquire and process information about local firms in a fund's portfolio. Consistent with H2a, the impact of earnings opacity on fund discounts is significantly weaker for funds with a higher holding of U.S. cross-listed firms. Specifically, we find a negative and statistically significant coefficient on the interaction term of *Aggregate* with *DADR* (coefficient = -0.020, and *t*-value = -2.10).[24]

Model (2) shows a negative and significant coefficient on the interaction between *Aggregate* and *DIFRS* (coefficient = -0.023, and *t*-value = -2.14).[25] This finding indicates that the effects of earnings opacity on fund discounts are less pronounced for funds with more familiar accounting practices, supporting H2b.[26]

Consistent with H3, Model (3) shows a negative and significant coefficient on the interaction between *Aggregate* and the proxy for international financial integration (*DIntegrate*)

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[24] A joint F-test suggests that the positive association is still statistically significant (but much weaker) for funds with a higher holding of ADR firms (*F*-statistic = 12.39).

[25] A joint F-test suggests that there still exists a positive relation between earnings opacity and fund discounts for funds with underlying firms following IFRS (*F*-statistic = 8.31).

[26] In an untabulated sensitivity analysis, we consider an alternative measure of GAAP convergence (*DGAAP*). *DGAAP* equals one when the local-U.S. GAAP convergence value is above the sample median (zero otherwise), where data on convergence are obtained from Bradshaw et al. (2004). For those countries that mandate IFRS, we follow Bae et al. (2008) and assign a convergence value of 0.809 to the sample observations. We find negative coefficients on the interaction between *Aggregate* and *DGAAP* (coefficient = -0.024, *t*-value = -2.52, and *F*-statistic =23.36).

(coefficient = -0.027, and *t*-value = -2.07).[27] Such a negative coefficient implies that the effect of earnings opacity on fund discounts is less pronounced for foreign firms in more integrated markets.

Finally, we stack all moderating variables in Model (4) and continue to find results consistent with H2-H3. In addition to being of interest by themselves, these findings also lend further credence to the results for H1 as reported in Table 4. That is, we observe cross-sectional variations in the main effects of earnings opacity as predicted by economic theory and prior research.

5. Additional Analyses and Robustness Tests

5.1 Changes Analyses

Consistent with prior research, our primary analyses are in levels. We control for a large number of factors and include both time-variant and time-invariant country controls. However, although our findings are consistent with economic theory, a potential limitation of this approach is that we are documenting associations and not necessarily a causal effect. As an important robustness test for our primary hypothesis, we provide results using a changes specification. These analyses have the advantage of using a fund as its own control and therefore help to control for unknown time-invariant firm-, fund-, and country-specific factors. Specifically, we compute year-over-year changes in both dependent and independent variables (i.e., comparing the current quarter with the same quarter for the prior year) and estimate regression Equation (1)

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[27] We use a continuous variable of financial integration (*Integrate*) as a control variable in Models (1) and (2). For Models (3) and (4), we use an indicator variable for market segmentation (*DIntegrate*) and thus exclude *Integrate*. A joint F-test for Model (3) suggests that there still exists a positive relation between earnings opacity and fund discounts for funds which invest in less segmented (i.e., more integrated) host stock markets (*F*-statistic = 22.94).

using the differenced variables. Country-fixed effects are differenced out and hence are excluded from the regressions.

Table 6 presents the results for two regressions, with and without changes in the time-varying country-level control variables, respectively. We still include quarter fixed effects in both regressions. The results show that, after controlling for changes in other determinants of fund discounts, an increase in earnings opacity is positively related to an increase in fund discounts as evidenced by the positive coefficients on the change of aggregate earnings opacity (*ΔAggregate*) (coefficients = 0.034 and 0.037; and *t*-values = 3.68 and 3.98, respectively). These results strengthen the inferences from the association tests as reported in previous sections, and provide further support for our conclusion that earnings opacity is an important driver of closed-end country fund discounts.

5.2 Alternative Measures of Earnings Opacity

We repeat our tests using two alternative measures of opacity. The first is Dechow-Dichev's (2002) accruals quality measure (as modified by McNichols 2002). The Dechow-Dichev model assumes that cash flow is the primitive element that investors price and identifies accruals quality (*AQ*) as the measure of information uncertainty associated with earnings. The additional data requirements for this measure yields a smaller sample size (N = 626).

The second measure is earnings-return relations following Francis and Schipper (1999), Collins, Maydew, and Weiss (1997) and Bushman, Chen, Engel, and Smith (2004). We first estimate the explained variability from the regression of stock returns on the level and change in earnings. The regression is estimated for each fund-quarter portfolio holdings by using the underlying firms' financial data over the previous four years. The negative value of the adjusted

R^2 from the regression (*NegRelev*) is the alternative measure of earnings opacity. A larger value of *NegRelev* implies a lower value relevance of earnings and thus a higher degree of earnings opacity.[28]

Results using the alternative opacity measures are reported in Table 7. The coefficients on both alternative measures are positive and significant at the 0.01 level, which provides further confidence in our main results.[29]

5.3 Additional Controls and Fund Fixed Effects (Untabulated)

In untabulated analyses we further control for three factors related to how familiar U.S. fund investors are likely to be with firms from a particular foreign country: (1) the amount of bilateral trade (from the United Nations Commodity Trade Statistics database); (2) geographical proximity measured as the bilateral distance between the capital cities of the two countries (from www.mapsofworld.com); and (3) an indicator variable for common language (using data compiled from the World Factbook 2010) (see Appendix for variable definitions). Inferences remain the same with these controls added.

We additionally include a control for currency crises (Glick and Hutchison 2011). Next, we consider the role of auditing. Specifically, we include an indicator variable that is equal to one for those funds whose percentage of underlying firms being audited by Big-4 auditors is above the sample median (zero otherwise) in the regression. No inferences are affected when we include these additional control variables (see Appendix for variable definitions).

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[28] The mean (median) for *AQ* is 0.037 (0.039), with a standard deviation of 0.014; and the mean (median) for *NegRelev* is -0.165 (-0.143), with a standard deviation of 0.135.

[29] In untabulated analyses we further find that the results for H2-H3 are also robust to the alternative measures of earnings opacity.

Finally, to control for any fund "style" or "fund manager quality" fixed effects that may not be picked up by our control variables, we rerun the analyses using fund fixed effects (and hence exclude the country fixed effects).[30] Untabulated results show that *Aggregate* has a statistically significant positive coefficient (coefficient = 0.042, *t*-value = 4.84). In other words, when we use fund fixed effects to control for unknown fund-related time-invariant factors, the results are similar to those reported in previous sections.[31]

6. Conclusions

This is the first study to examine whether the quality of accounting information affects closed-end country fund discounts. We take advantage of the unique feature that these funds essentially have "two prices" – the price of the fund as quoted on a U.S. stock exchange and the price of the underlying assets in the local market (i.e., the NAV of the fund). When investing in the foreign assets, U.S. investors have to incur higher information acquisition and processing cost and have access to limited information channels, thereby suffering from an information disadvantage compared with local investors. We expect that the opaqueness of earnings information from the underlying local firms exacerbates U.S. investors' information disadvantage. Our main hypothesis extends prior studies on how information asymmetry between foreign and local investors affects equity prices (e.g., Chan et al. 2008a). To the extent that earnings opacity exacerbates U.S. investors' information disadvantage, we posit that greater

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[30] Not surprisingly, there is a significant overlap between country and fund effects. Specifically, among 21 countries covered in our sample, 11 countries have one fund each, and 8 countries have two funds each.

[31] We have also examined whether the life cycles of country funds affect the association between earnings opacity and fund discounts. To measure life cycles of funds, we construct an indicator variable of fund age that equals to 1 if the fund is above the sample median (0 otherwise). The results show that the coefficient on the interaction term is negative and significant at the 1% level (untabulated). These results provide some indication that the effect of earnings opacity is weaker for older country funds.

earnings opacity of the underlying firms in a fund portfolio is associated with a larger fund discount.

To test this hypothesis, we use a sample of 804 fund-quarter observations based on 35,588 underlying firm-quarter observations. For these fund observations, we estimate fund-level earnings opacity using three individual measures widely employed in prior literature as well as an aggregate measure. After controlling for numerous factors known to affect country fund discounts as well as quarter, country, and fund fixed effects, we find strong evidence consistent with our hypothesis that fund-level earnings opacity is positively associated with fund discounts. These results suggest that U.S. investors respond to their information disadvantage caused by opaque earnings information by setting a lower fund price (relative to fund NAV).

We further show that the positive association between fund discounts and earnings opacity is mitigated by holding a high percentage of firms cross-listed in the U.S., by use of IFRS, and by high financial integration between local and U.S. markets. Our results are robust to changes specification, to alternative earnings opacity proxies, and to alternative proxies for information costs.

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Appendix: Variable Definitions

This appendix provides the definitions of variables and data sources. For those variables without specific data sources, the data are obtained from Capital IQ, Worldscope, CRSP, or COMPUSTAT.

Dependent Variable

Discount	=	Quarterly fund discount, measured as the average of the three monthly fund discounts for that quarter. The monthly fund discount is the difference between fund net asset value and fund price, divided by net asset value as at the last trading day of that month.

Test Variables

Aggressive	=	Earnings aggressiveness, measured as the median of the fund holdings' accruals, divided by lagged total assets in fund portfolio holdings.
Avoid	=	Loss avoidance, measured as the ratio of the number of firms with small positive earnings minus the number of firms with small negative earnings, divided by their sum in fund portfolio holdings.
Smooth	=	Earnings smoothing, measured as the Spearman correlation between the change in accruals and the change in cash flow from operations in fund portfolio holdings.
Aggregate	=	Aggregate earnings opacity metric, measured as the average of the normalized previous three measures (i.e., *Aggressive*, *Smooth*, and *Avoid*).
AQ	=	Accruals quality, measured as the standard deviation of the residual of the Dechow and Dichev (2002) model over years t-5 through t-1.
NegRelev	=	The negative value of the adjusted R^2 from a fund- and quarter-specific regression of stock returns on the levels and change in earnings, estimated using the underlying firms' financial data from previous four years.
DADR	=	An indicator variable that takes on the value of one if the holding percentage of firms cross-listed on U.S. exchanges is above the sample median, and zero otherwise [Source: the American Depositary Receipts (ADRs) databases provided by Citibank and JP Morgan].
DIntegrate	=	An indicator variable that takes on the value of one if the Index of Investment Freedom is above the sample median, and zero otherwise [Source: Heritage Foundation].
DIFRS	=	An indicator variable that takes on the value of one if host countries adopt IFRS, and zero otherwise [Source: www.iasplus.com].

Control Variables

Fund-Specific Control Variables:

Age	=	Fund age, measured as the natural log of the number of years from a fund's IPO date.
Size	=	Fund size, measured as the natural log of the fund's market capitalization (in millions of dollars) at the end of last quarter.
Div	=	Dividend yield, calculated as the dividends (excluding capital gains dividends) paid by the fund in the prior 12-month period, scaled by net asset value at the end of the

quarter.

Volatility	=	The weighted average of standard deviation of weekly returns during the previous year for underlying stocks, with weights being the investment percentage of a fund portfolio for these stocks [Source: Datastream].
Expense	=	Fund expense ratio, measured as a fund's total annual expense divided by its net asset value in the previous year.
Gains	=	Unrealized long-term capital gains as a percentage of the fund's net asset values in the prior year [Source: Funds' annual reports].
CNAV	=	Fund net asset value changes in the prior year, adjusted by the concurrent changes in the respective local stock market index.
DMOwn	=	Fund managers' fund ownership, measured as an indicator variable that takes on the value of one if the percentage holding of the fund by fund managers is above 0 for prior year, and zero otherwise [Source: Funds' annual reports].
Inst	=	Institutional ownership of a fund, measured as the percentage holding of the fund by institutional investors at the end of last quarter [Source: Thomson Reuters].

Country-Specific Control Variables:

Turnover	=	Quarterly turnover, measured as the average of the three monthly turnover ratios for that quarter. The monthly turnover ratio is the ratio of the median turnover of U.S. stocks in a month, over the concurrent median turnover of stocks in a closed-end country fund's respective host market [Source: Datastream].
USMkt	=	U.S. market factor, measured as the concurrent quarterly change in the Dow Jones Industrial Average index [Source: Datastream].
FMkt	=	Foreign market factor, measured as the concurrent quarterly change in the foreign stock market index [Source: Datastream].
Fxchg	=	Foreign exchange appreciation rate, calculated as the concurrent quarterly change in the foreign exchange rate between the U.S. and the host country [Source: Datastream].
FinDev	=	The extent of financial development, measured as equity market capitalization of host countries, scaled by gross domestic product of respective countries in the prior year [Source: World Development Indicators 2011].
TaxComp	=	Cost of tax compliance at host countries in the prior year [Source: 2011 Economic Freedom of the World Reports].
Popularity	=	Country popularity score, measured by multiplying the percentage of survey participants in the U.S. thinking very favorably of a country by four, mostly favorably of a country by three, mostly unfavorably of a country by two, and very unfavorably of a country by one, in the prior year [Source: iPoll Databank].
Integrate	=	Degree of financial integration as measured by the Index of Investment Freedom in the previous year. This index refers to the extent to which individuals and firms would be allowed to move their resources into and out of specific activities both internally and across the country's borders without restriction. The value ranges from 0 to 1, with higher values indicating higher financial integration and lower market segmentation [Source: Heritage Foundation].
Disclosure	=	Disclosure index in the prior year, which measures the extent to which investors are protected through disclosure of ownership and financial information. The index ranges

		from 0 to 1, with higher values indicating more disclosure [Source: World Development Indicators 2011].
Protection	=	Index of investor protection in the prior year, which measures the extent to which interests of minority shareholders in a host country are protected by law and actively enforced. The index ranges from 0 to 1, with higher values indicating more protected by law and more actively enforced [Source: World Economic Forum's Global Competitiveness Report].
GDPGrowth	=	Annual percentage growth rate of GDP at market prices in the prior year, based on constant local currency [Source: World Development Indicators 2011].
Concentr	=	Equity ownership concentration, measured as the average percentage of common shares owned by the top three shareholders in the ten largest non-financial domestic firms in a host country [Source: La Porta, Lopez-de-Silanes, and Shleifer (1999) for most countries, Kuznetsov and Muravyev (2005) for Russia, and our calculation for China].

Additional Control Variables

Trade	=	The maximum of bilateral import and export between a country pair. Bilateral import (export) is calculated as the value of imports (exports) by host country from (to) US as a percentage of total imports (exports) by host country in the prior year, based on the Harmonized System definition [Source: the United Nations Commodity Trade Statistics database].
Distance	=	The natural log of the great circle distance between the capitals of the U.S. and the host country in thousands of kilometers. We obtain the latitudes and longitudes of capital cities of each country and apply the standard formula as in Erel, Liao, and Weisbach (2012) [Source: www.mapsofworld.com/utilities/world-latitude-longitude.htm].
Language	=	Common language, measured as an indicator variable that takes on the value of one if the U.S. and the host country's primary language are the same, and zero otherwise [Source: World Factbook 2010].
Crisis	=	Currency crisis indicator, measured as an indicator variable that takes on the value of one if the currency in the host country against U.S. Dollar depreciates by 25% or greater, and zero otherwise [Source: Glick and Hutchison 2011].
Auditor	=	Audit quality, measured as an indicator variable that takes on the value of one for funds whose percentage of underlying firms being audited by Big-4 auditors is above the sample median, and zero otherwise.

Table 1: The Sample – Closed-End Country Funds, Portfolio Holdings, and Country-Level Variables

This table shows the closed-end country fund sample distribution by country and presents the mean value of country-level variables. The sample consists of 804 fund-quarters based on 35,588 underlying firm-quarters from 21 countries for the period 2004-2010.

Country	Closed-End Country Fund (Ticker)	# of Fund-Quarters	# of Underlying Firm-Quarters	Turnover	FMkt	Fxchg	FinDev	TaxComp	Popularity	Integrate	Disclosure	Protection	GDPGrowth
Australia	Aberdeen Australia Equity Fund (IAF)	28	734	0.974	0.003	-0.003	1.237	0.880	3.179	0.729	0.800	0.814	0.031
Brazil	Brazil Fund Inc. (BZF) Brazilian Equity Fund (BZL)	9	243	2.414	0.030	-0.010	0.478	0.000	2.483	0.500	0.600	0.646	0.039
Chile	Aberdeen Chile Fund (CH)	26	1,448	4.651	0.018	-0.003	1.169	0.650	1.980	0.727	0.700	0.740	0.038
China	JF China Region Fund (JFC) Morgan Stanley China A Share Fund (CAF) Templeton Dragon Fund (TDF) The China Fund (CHN) The Greater China Fund (GCH)	121	8,596	0.805	0.005	-0.003	0.820	0.234	2.225	0.300	1.000	0.534	0.111
Germany	The Germany Fund (EEA) New Germany Fund (GF)	53	1,501	0.584	0.006	0.000	0.461	0.777	2.793	0.872	0.500	0.833	0.006
India	India Fund (IFN) Morgan Stanley India Investment Fund (IIF)	52	3,766	1.541	0.016	0.001	0.783	0.701	2.533	0.444	0.700	0.742	0.085
Indonesia	Aberdeen Indonesia Fund (IF)	26	276	2.367	0.019	0.002	0.322	0.557	2.280	0.323	0.915	0.713	0.054
Ireland	The New Ireland Fund (IRL)	27	655	1.423	-0.006	-0.001	0.473	0.910	3.201	0.900	1.000	0.791	0.020
Israel	Aberdeen Israel Fund (ISL)	27	1,331	1.597	0.005	-0.002	0.937	0.740	2.658	0.730	0.700	0.750	0.040
Japan	Japan Equity Fund (JEQ) Japan Smaller Capitalization Fund (JOF)	52	2,642	0.810	-0.004	-0.003	0.847	0.617	2.853	0.569	0.700	0.691	0.004

Country	Fund												
Malaysia	Malaysia Fund (MAY)	26	774	3.638	0.005	-0.002	1.414	0.814	2.280	0.342	1.000	0.768	0.047
Mexico	Mexico Equity Income Fund (MXE) The Mexico Fund (MXF)	56	1,484	2.674	0.017	0.001	0.293	0.421	2.535	0.500	0.714	0.618	0.019
Russia	Central Europe Russia Fund (CEE) Morgan Stanley Russia & New Europe Fund (RNE) Templeton Russia and East European Fund (TRF)	57	1,678	3.631	0.002	0.001	0.685	0.549	2.338	0.349	0.600	0.437	0.042
Singapore	The Singapore Fund (SGF)	27	909	1.780	0.005	-0.003	1.991	0.932	2.280	0.856	1.000	0.800	0.065
South Korea	Korea Equity Fund (KEF) The Korea Fund (KF)	54	2,413	0.639	0.009	0.000	0.787	0.692	2.531	0.700	0.715	0.655	0.035
Southern Africa	The Southern Africa Fund (SOA)	2	68	1.648	0.017	0.002	1.592	0.670	2.390	0.700	0.700	0.786	0.029
Spain	The Spain Fund (SNF)	27	285	0.481	-0.023	0.000	0.914	0.710	2.610	0.715	0.500	0.651	0.021
Swiss	The Swiss Helvetia Fund (SWZ)	27	909	0.985	0.000	-0.002	2.432	0.930	2.550	0.470	0.000	0.723	0.019
Taiwan	Taiwan Greater China Fund (TFC) The Taiwan Fund (TWN)	53	4,111	0.688	0.004	-0.001	1.403	0.641	2.460	0.647	0.700	0.658	0.038
Thailand	Thai Capital Fund (TF) Thai Fund (TTF)	49	1,758	1.365	0.005	-0.003	0.656	0.700	2.280	0.345	1.000	0.691	0.038
Turkey	Turkish Investment Fund (TKF)	5	7	3.743	0.026	0.023	0.285	0.750	2.176	0.500	0.800	0.631	0.055

Table 2: Characteristics of Portfolio Holdings of the Closed-End Country Funds Sample

This table shows the return-on-assets and firm size for underlying firms in the fund portfolios and for all the local firms in the Worldscope database for that country. Sample fund portfolios consist of 35,588 underlying firm-quarters from 21 countries for the period 2004-2010.

Country	Closed-End Country Fund (Ticker)	# of Underlying Firm-Quarters	Return on Assets				Market Capitalization (Millions USD)			
			Fund Portfolios		Worldscope Data		Fund Portfolios		Worldscope Data	
			Mean	Median	Mean	Median	Mean	Median	Mean	Median
Australia	Aberdeen Australia Equity Fund (IAF)	734	0.090	0.077	-0.072	-0.038	6,621.80	6,099.48	404.80	17.80
Brazil	Brazil Fund Inc. (BZF) Brazilian Equity Fund (BZL)	243	0.125	0.112	0.050	0.060	4,884.76	3,648.94	1,581.20	470.41
Chile	Aberdeen Chile Fund (CH)	1,448	0.081	0.080	0.049	0.052	5,484.35	3,769.10	1,067.03	214.30
China	JF China Region Fund (JFC) Morgan Stanley China A Share Fund (CAF) Templeton Dragon Fund (TDF) The China Fund (CHN) The Greater China Fund (GCH)	8,596	0.110	0.100	0.049	0.046	2,608.13	1,159.08	603.80	200.18
Germany	The Germany Fund (EEA) New Germany Fund (GF)	1,501	0.078	0.063	0.012	0.022	4,454.09	2,615.18	1,231.15	128.45
India	India Fund (IFN) Morgan Stanley India Investment Fund (IIF)	3,766	0.104	0.090	0.075	0.074	2,808.16	921.29	439.84	56.26
Indonesia	Aberdeen Indonesia Fund (IF)	276	0.155	0.148	0.048	0.040	2,484.52	1,275.93	475.47	81.06
Ireland	The New Ireland Fund (IRL)	655	0.086	0.087	0.007	0.028	2,666.34	1,307.23	1,444.65	190.53
Israel	Aberdeen Israel Fund (ISL)	1,331	0.051	0.034	0.006	0.023	4,310.54	2,090.20	1,180.27	214.15
Japan	Japan Equity Fund (JEQ) Japan Smaller Capitalization Fund (JOF)	2,642	0.069	0.061	0.051	0.043	7,044.49	8,009.89	1,108.17	247.62

Malaysia	Malaysia Fund (MAY)	774	0.079	0.071	0.027	0.033	3,655.35	1,501.03	371.20	68.32
Mexico	Mexico Equity Income Fund (MXE) The Mexico Fund (MXF)	1,484	0.108	0.097	0.069	0.064	4,113.27	2,193.94	1,951.41	862.47
Russia	Central Europe Russia Fund (CEE) Morgan Stanley Russia & New Europe Fund (RNE) Templeton Russia and East European Fund (TRF)	1,678	0.126	0.145	0.072	0.077	6,853.12	7,847.90	1,874.70	798.81
Singapore	The Singapore Fund (SGF)	909	0.088	0.075	0.032	0.039	3,320.14	1,255.31	459.41	71.94
South Korea	Korea Equity Fund (KEF) The Korea Fund (KF)	2,413	0.093	0.082	0.043	0.044	4,656.22	2,685.17	811.98	143.84
Southern Africa	The Southern Africa Fund (SOA)	68	0.076	0.062	0.065	0.071	3,805.03	2,176.83	844.11	106.38
Spain	The Spain Fund (SNF)	285	0.079	0.066	0.042	0.036	10,719.84	11,573.78	2,749.21	1,100.91
Swiss	The Swiss Helvetia Fund (SWZ)	909	0.072	0.072	0.041	0.042	4,978.67	2,657.12	2,093.37	546.50
Taiwan	Taiwan Greater China Fund (TFC) The Taiwan Fund (TWN)	4,111	0.094	0.081	0.056	0.048	3,014.23	1,005.00	512.72	86.46
Thailand	Thai Capital Fund (TF) Thai Fund (TTF)	1,758	0.088	0.076	0.044	0.045	2,196.65	520.12	422.02	63.00
Turkey	Turkish Investment Fund (TKF)	7	0.088	0.058	0.040	0.036	7,225.39	5,945.13	1,044.80	189.16

Table 3: Descriptive Statistics and Correlations

This table presents the descriptive statistics and the correlation coefficients for the variables used in the tests of hypotheses. Panel A reports the descriptive statistics for fund discounts, four measures of earnings opacity and fund-specific control variables. The country-level control variable *USMkt* is also included. Panel B shows Pearson correlation for all the variables used in the tests of hypotheses. *ADR* is the percentage of firms cross-listed on U.S. exchanges in a fund holding. The variables *Age* and *Size* are reported in years and in millions of dollars, respectively. All other variables are defined in the Appendix. For variables *Smooth* and *Aggregate*, the calculation excludes 13 fund-quarters from the Turkey Investment Fund and Japan Smaller Capitalization Fund, both of which have only one or two underlying firms, resulting in 791 fund-quarters. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests.

Panel A: Descriptive Statistics

	N	25%	Mean	Median	75%	STD
Discount	804	0.028	0.060	0.083	0.118	0.091
Aggressive	804	-0.052	-0.036	-0.031	-0.012	0.038
Avoid	804	0.003	0.059	0.043	0.089	0.066
Smooth	791	0.764	0.818	0.847	0.909	0.126
Aggregate	791	-0.321	0.004	0.070	0.341	0.579
ADR	804	0.072	0.259	0.178	0.394	0.217
DIFRS	804	0.000	0.234	0.000	0.000	0.424
Age (Years)	804	15.000	17.056	17.000	20.000	4.190
Size (Millions $)	804	83.876	284.509	149.018	352.600	334.339
Div	804	0.003	0.024	0.009	0.022	0.040
Volatility	804	0.058	0.078	0.077	0.095	0.024
Expense	804	0.014	0.017	0.016	0.019	0.005
Gains	804	0.136	0.248	0.263	0.386	0.213
DMOwn	804	0.000	0.248	0.000	0.000	0.432
Inst	804	0.068	0.192	0.168	0.283	0.144
CNAV	804	-0.150	-0.042	-0.006	0.114	0.301
USMkt	804	-0.009	0.002	0.005	0.018	0.025

Panel B: Pearson Correlations

	Discount	Aggressive	Avoid	Smooth	Aggregate	ADR	Age	Size	Div	Volatility	Expense	Gains	CNAV
Aggressive	0.127***												
Avoid	0.089**	-0.053											
Smooth	0.243***	0.185***	-0.022										
Aggregate	0.241***	0.618***	0.494***	0.658**									
ADR	0.003	-0.111***	0.117***	0.050	0.048								
Age	0.166***	-0.220***	0.032	0.089**	-0.062*	0.155***							
Size	-0.063*	0.125***	-0.109***	0.023	0.019	-0.163***	-0.106***						
Div	-0.183***	0.018	-0.028	-0.018	-0.018	0.226***	0.104***	0.023					
Volatility	0.151***	0.139***	0.080**	0.062*	0.161***	-0.321***	0.001	0.056	-0.119***				
Expense	-0.163***	-0.094***	-0.056	-0.116***	-0.148***	-0.233***	-0.193***	-0.418***	-0.042-	-0.042			
Gains	-0.055	0.009	-0.140***	0.046	-0.042	0.080**	-0.043	0.416***	-0.024	-0.313***	-0.173***		
CNAV	0.071**	0.096***	-0.189***	0.003	-0.052	0.045	-0.153***	0.187***	-0.015	-0.073**	0.053	0.092**	
DMOwn	0.055	-0.189***	-0.002	0.018	-0.105***	-0.091***	0.136***	-0.050	-0.041	0.103***	0.092***	-0.074**	0.038
Inst	0.389***	-0.116***	-0.087**	0.047	-0.097***	-0.151***	0.120***	0.063*	-0.188***	0.357***	-0.050	-0.043	-0.035
Turnover	-0.061**	0.041	-0.246***	0.038	-0.074**	0.055	-0.002	-0.134***	-0.034	-0.250***	0.109***	0.163***	-0.055
USMkt	-0.108***	-0.165***	0.032	-0.040	-0.091**	0.006	0.023	0.100***	-0.150***	0.102***	-0.043	-0.033	-0.369***
FMkt	-0.097***	0.037	-0.001	-0.013	0.023	0.006	-0.033	0.048	-0.065*	0.089**	-0.127***	0.050	-0.053
Fxchg	0.071**	0.057	-0.028	0.044	0.034	-0.018	0.020	-0.101***	0.043	-0.025	-0.005	0.031	0.094***
FinDev	0.106***	0.125***	-0.044	0.120***	0.104***	-0.044	0.052	0.108***	0.068*	-0.120***	0.175***	0.151***	0.230***
TaxComp	0.054	-0.129***	0.103***	0.001	-0.012	0.208***	0.350***	-0.195***	0.090**	0.060*	-0.023	-0.077**	0.097
Popularity	-0.027	-0.004	0.284***	0.049***	0.175***	0.425***	0.180***	-0.044	0.101***	-0.215***	0.019	-0.206***	0.129***
Integrate	0.116***	-0.024	0.267***	0.140***	0.213***	0.369***	0.284***	-0.171***	0.117***	-0.148***	0.019	-0.206***	0.049
DIFRS	0.019	-0.028	0.043	-0.029	0.001	0.238***	0.093*	0.041	0.269***	-0.052	-0.200***	-0.018	-0.004
Disclosure	-0.082**	0.057	-0.195***	-0.041	-0.095***	-0.108***	-0.183***	-0.153***	0.039	0.161***	-0.132***	-0.124***	0.165***
Protection	0.008	0.010	0.196***	0.109***	0.176***	0.384***	0.288***	-0.115***	0.131***	-0.019	0.083**	-0.165***	-0.207****
GDPGrowth	-0.170***	0.432***	-0.219***	-0.026	0.115***	-0.260***	-0.450***	0.304***	0.032	-0.143***	0.199***	0.075**	-0.159***
Concentr	0.074**	0.050	-0.146***	-0.067*	-0.079**	0.136***	-0.169***	-0.044	0.077**	-0.204***	0.100***	0.216***	0.038

Panel B: Pearson Correlation (Cont.)

	DMOwn	Inst	Turnover	USMkt	FMkt	Fxchg	FinDev	TaxComp	Popularity	Integrate	DIFRS	Disclosure	Protection	GDPGrowth
Inst	0.095***													
Turnover	0.041	-0.176***												
USMkt	0.112***	0.009	-0.049											
FMkt	0.075**	0.011	0.047	0.367***										
Fxchg	-0.049	0.005	0.027	-0.453***	-0.209***									
FinDev	-0.090**	0.049	-0.072**	-0.163***	-0.222***	-0.009								
TaxComp	-0.095***	0.027	-0.043	-0.019	-0.100	0.027	0.392							
Popularity	-0.200***	-0.087**	-0.336***	-0.014	-0.070**	-0.013	-0.072**	0.396***						
Integrate	-0.043	0.074**	-0.204***	0.005	-0.046	-0.005	0.101***	0.555***	0.575***					
DIFRS	-0.038	-0.020	-0.331***	-0.025	-0.156***	-0.026	0.148***	0.237***	0.256***	0.211***				
Disclosure	0.230***	-0.066*	0.012	-0.004	0.013	-0.026	-0.300***	-0.287***	-0.287***	-0.280***	0.038			
Protection	-0.085**	-0.027	-0.171***	-0.045	-0.032	-0.002	0.249***	0.715***	0.441***	0.600***	0.216***	-0.122***		
GDPGrowth	0.026	-0.161***	0.005	-0.127***	-0.020	0.006	0.135***	-0.436***	-0.365***	0.419***	-0.028	0.396***	-0.273***	
Concentr	0.007	-0.119***	0.414***	-0.003	0.041	0.022	-0.271***	-0.393***	-0.446***	-0.414***	0.111***	0.416***	0.197***	-0.311***

Table 4: The Relation between Fund-Level Earnings Opacity and Fund Discounts

Table 4 presents the relation between fund-level earnings opacity and fund discounts. Panel A shows the mean and median values of fund discounts across quartiles of the four earnings opacity measures. Panel B reports the regressions of closed-end country fund discounts on various proxies of fund-level earnings opacity and control variables. All variables are defined in the Appendix.*, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests. Quarter and/or country fixed effects are included. In Models (5) and (6), country fixed effects are included so the variable *Concentr* is excluded as it is a fixed country-level variable. Standard errors are clustered by fund.

Panel A: Pairwise Comparison of Fund Discounts across Earnings Opacity Subgroups

	N	Sorted by *Aggressive*		N	Sorted by *Avoid*		N	Sorted by *Smooth*		N	Sorted by *Aggregate*	
		Aggressive	Discount		*Avoid*	Discount		*Smooth*	Discount		*Aggregate*	Discount
		Mean (Median)	Mean (Median)		Mean (Median)	Mean (Median)		Mean (Median)	Mean (Median)		Mean (Median)	Mean (Median)
1	201	-0.086 (-0.077)	0.037 (0.085)	201	-0.006 (0.000)	0.042 (0.073)	198	0.641 (0.667)	0.043 (0.075)	198	-0.755 (-0.661)	0.035 (0.075)
2	201	-0.041 (-0.040)	0.059 (0.076)	205	0.032 (0.033)	0.054 (0.072)	199	0.813 (0.817)	0.060 (0.074)	198	-0.102 (-0.074)	0.065 (0.078)
3	201	-0.022 (-0.022)	0.072 (0.086)	197	0.064 (0.064)	0.073 (0.089)	197	0.878 (0.875)	0.069 (0.087)	198	0.198 (0.188)	0.072 (0.086)
4	201	0.005 (-0.002)	0.069 (0.082)	201	0.144 (0.123)	0.070 (0.094)	197	0.942 (0.936)	0.075 (0.095)	197	0.679 (0.594)	0.075 (0.094)

Test of difference – t-values (z-values) for the mean (median) comparison between the fourth and the first quartile:

	Sorted by *Aggressive*		Sorted by *Avoid*		Sorted by *Smooth*		Sorted by *Aggregate*	
Mean	36.01***	3.28***	34.10***	2.84***	37.86***	3.33***	41.14***	4.19***
Median	(17.34***)	(1.36)	(18.09***)	(3.37***)	(17.19***)	(3.02***)	(17.19***)	(3.35***)

Panel B: Regression Analysis of The Relation between Fund-Level Earnings Opacity and Fund Discounts

	(1)	(2)	(3)	(4)	(5)	(6)
Aggressive	0.617***					
	(4.53)					
Avoid		0.149**				
		(2.35)				
Smooth			0.138***			
			(4.48)			
Aggregate				0.047***	0.047***	0.046***
				(6.87)	(5.41)	(5.07)
Age	0.035***	0.035***	0.027**	0.034***	0.031**	0.039***
	(2.58)	(3.43)	(2.32)	(2.91)	(2.11)	(3.18)
Size	-0.007	-0.007	-0.006	-0.005	-0.008	-0.006
	(-1.21)	(-1.26)	(-1.11)	(-0.93)	(-0.91)	(-0.84)
Div	-0.415***	-0.431***	-0.436***	-0.385***	-0.195*	-0.298***
	(-3.03)	(-3.02)	(-3.18)	(-3.09)	(-1.77)	(-3.54)
Volatility	0.599**	0.714**	0.565**	0.609**	0.897***	0.743***
	(2.03)	(2.37)	(2.03)	(2.23)	(3.84)	(2.92)
Expense	-2.406**	-2.556**	-2.622***	-2.097**	-2.638*	-1.468
	(-2.50)	(-2.26)	(-2.64)	(-2.07)	(-1.95)	(-1.07)
Gains	0.002	-0.008	-0.016	0.007	0.019	0.019
	(0.11)	(-0.33)	(-0.69)	(0.32)	(0.86)	(0.89)
DMOwn	0.008	0.017	0.009	0.010	0.011	0.010
	(0.49)	(1.06)	(0.54)	(0.69)	(0.55)	(0.65)
Inst	0.169***	0.168***	0.164***	0.181***	0.166***	0.164***
	(4.42)	(4.35)	(4.61)	(5.13)	(3.60)	(4.10)
CNAV	0.001	-0.003	-0.004	-0.001	0.0125	0.003
	(0.01)	(-0.18)	(-0.22)	(-0.01)	(0.83)	(0.17)
Turnover	-0.008	-0.003	-0.005	-0.004		-0.023***
	(-1.31)	(-0.44)	(-0.80)	(-0.70)		(-2.89)
USMkt	-0.298***	-0.412***	-0.382***	-0.312***		-0.344***
	(-2.73)	(-3.38)	(-3.04)	(-2.68)		(-2.60)
FMkt	-0.091*	-0.053	-0.051	-0.072		-0.093**
	(-1.91)	(-1.02)	(-0.90)	(-1.47)		(-2.30)
Fxchg	0.053	0.086	0.097	0.127		0.098
	(0.38)	(0.62)	(0.78)	(1.11)		(0.88)
FinDev	0.039***	0.044***	0.036***	0.034***		0.036**
	(3.38)	(3.74)	(3.16)	(3.16)		(2.39)
TaxComp	-0.030	-0.046	-0.016	0.003		-0.001
	(-0.61)	(-0.90)	(-0.34)	(0.07)		(-0.01)
Popularity	0.017	0.029	0.033	0.025		-0.074
	(0.48)	(0.79)	(0.98)	(0.75)		(-1.19)
Integrate	0.112***	0.130***	0.113***	0.093***		0.054
	(3.22)	(3.88)	(3.81)	(3.08)		(0.56)
Disclosure	0.035	0.032	0.031	0.048		-0.106
	(0.93)	(0.83)	(0.87)	(1.32)		(-1.18)
Protection	-0.143*	-0.122*	-0.153**	-0.193***		-0.274*
	(-1.94)	(-1.70)	(-2.28)	(-3.34)		(-1.68)

GDPGrowth	-0.547***	-0.232*	-0.274**	-0.402***		-0.234*
	(-3.09)	(-1.69)	(-2.13)	(-2.92)		(-1.75)
Concentr	0.204***	0.200***	0.195***	0.190***		
	(4.67)	(5.16)	(5.06)	(5.39)		
Intercept	-0.119	-0.224	-0.268*	-0.162	-0.035	0.359
	(-0.86)	(-1.56)	(-1.74)	(-1.20)	(-0.46)	(1.42)
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	Yes
N	804	804	791	791	791	791
Adj. R^2	0.370	0.332	0.351	0.388	0.384	0.439

Table 5: The Effect of Moderating Variables on the Relation between Fund-Level Earnings Opacity and Fund Discounts

The table reports the regressions of closed-end country fund discounts on the aggregate measure of earnings opacity (*Aggregate*), three moderating variables and the interaction items between the earnings opacity measure and the individual moderating variables. An indicator for ADR percentage (*DADR*) is used as the moderating variable in Model 1, an indicator of IFRS (*DIFRS*) is used in Model 2, and an indicator of market segmentation (*DIntegrate*) is used in Model 3. Model 4 presents the regression using all three moderating variables and their interaction with the aggregate earnings opacity measure. All variables are defined in the Appendix. The F-Tests show the joint significance of the coefficients on *Aggregate* and *DADR×Aggregate* (for Model 1), the joint significance of the coefficients on *Aggregate* and *DIFRS×Aggregate* (for Model 2), and the joint significance of the coefficients on *Aggregate* and *DIntegrate×Aggregate* (for Model 3). *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests. Quarter and country fixed effects are included. Standard errors are clustered by fund.

	(1)	(2)	(3)	(4)
Aggregate	0.055***	0.052***	0.061***	0.070***
	(5.02)	(5.18)	(5.19)	(5.39)
DADR	0.011			0.008
	(1.04)			(0.69)
DADR×Aggregate	-0.020**			-0.017*
	(-2.10)			(-1.66)
DIFRS		-0.004		-0.005
		(-0.17)		(-0.25)
DIFRS×Aggregate		-0.023**		-0.022**
		(-2.14)		(-1.96)
DIntegrate			0.018	0.018
			(1.42)	(1.55)
DIntegrate×Aggregate			-0.027**	-0.022**
			(-2.08)	(-2.06)
Age	0.039***	0.041***	0.039***	0.041***
	(3.21)	(3.29)	(3.30)	(3.25)
Size	-0.008	-0.007	-0.006	-0.008
	(-1.04)	(-0.82)	(-0.87)	(-1.00)
Div	-0.305***	-0.286***	-0.297***	-0.290***
	(-3.54)	(-3.44)	(-3.77)	(-4.88)
Volatility	0.736***	0.736***	0.699***	0.699***
	(2.83)	(3.26)	(2.59)	(3.34)
Expense	-1.399	-1.489	-1.472	-1.442
	(-1.07)	(-1.15)	(-1.16)	(-1.30)
Gains	0.020	0.015	0.018	0.016
	(0.94)	(0.77)	(0.84)	(1.01)
DMOwn	0.011	0.011	0.012	0.012
	(0.68)	(0.70)	(0.79)	(0.95)
Inst	0.164***	0.160***	0.160***	0.157***
	(4.08)	(3.91)	(4.12)	(3.83)
CNAV	0.006	0.002	0.003	0.005
	(0.34)	(0.13)	(0.21)	(0.27)

Turnover	-0.021***	-0.022***	-0.024***	-0.022***
	(-2.76)	(-2.94)	(-3.10)	(-3.58)
USMkt	-0.339**	-0.349***	-0.360***	-0.358***
	(-2.56)	(-2.66)	(-2.69)	(-3.36)
FMkt	-0.081*	-0.091**	-0.083**	-0.075
	(-1.87)	(-2.03)	(-2.04)	(-1.29)
Fxchg	0.128	0.083	0.091	0.100
	(1.13)	(0.72)	(0.79)	(1.19)
FinDev	0.038**	0.039***	0.034**	0.039**
	(2.49)	(2.59)	(2.28)	(2.31)
TaxComp	-0.008	0.002	0.008	0.006
	(-0.10)	(0.03)	(0.10)	(0.09)
Popularity	-0.067	-0.067	-0.073	-0.061
	(-1.01)	(-1.05)	(-1.24)	(-1.00)
Integrate	-0.033	-0.050		
	(-0.36)	(-0.52)		
Disclosure	-0.070	-0.113	-0.095	-0.078
	(-0.81)	(-1.34)	(-1.03)	(-1.00)
Protection	-0.244	-0.282*	-0.251	-0.242*
	(-1.50)	(-1.73)	(-1.50)	(-1.65)
GDPGrowth	-0.244*	-0.247*	-0.240*	-0.254**
	(-1.85)	(-1.65)	(-1.97)	(-1.98)
Intercept	0.301	0.350	0.371	0.306
	(1.16)	(1.39)	(1.39)	(1.42)
Quarter FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
N	791	791	791	791
Adj. R^2	0.443	0.441	0.447	0.449
Joint F-Test	12.39***	8.31***	22.94***	

Table 6: Changes in Fund-Level Earnings Opacity and Changes in Fund Discounts

The table reports the regressions of the changes in closed-end country fund discounts on the changes in the aggregate measure of earnings opacity. The notation Δ refers to the change variables, specified as comparing the current quarter with the same quarter from the prior year (i.e., the change between Q_t and Q_{t-4}). The changes in the time-varying country-level variables are excluded from Model 1 and included in Model 2. All variables are defined in the Appendix. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests. Quarter fixed effects are included. Standard errors are clustered by fund.

	(1)	(2)
ΔAggregate	0.034***	0.037***
	(3.68)	(3.98)
ΔAge	-0.189***	-0.123***
	(-5.79)	(-3.33)
ΔSize	-0.068***	-0.061***
	(-4.91)	(-3.85)
ΔDiv	-0.299***	-0.302***
	(-3.12)	(-2.76)
ΔVolatility	0.840***	1.010***
	(4.14)	(3.69)
ΔExpense	-4.034***	-3.657***
	(-3.90)	(-3.91)
ΔGains	0.122***	0.103***
	(5.27)	(3.78)
ΔDMOwn	-0.009	-0.011
	(-0.58)	(-0.72)
ΔInst	0.074*	0.083*
	(1.70)	(1.84)
ΔCNAV	0.020	0.019
	(1.44)	(1.17)
Intercept	0.033***	0.041***
	(2.99)	(4.26)
ΔCountry-Level Variables	No	Yes
Quarter FE	Yes	Yes
N	652	652
Adj. R^2	0.259	0.285

Table 7: The Relation between Fund-Level Earnings Opacity and Fund Discounts Using Alternative Measures of Earnings Opacity

This table reports the regressions of closed-end country fund discounts on two alternative proxies of fund-level earnings opacity and control variables. The first proxy is the accrual quality measure based on Dechow and Dichev (2002) (in Model 1), and the second proxy is the negative value of return-earnings relevance (in Model 2). The sample size is smaller because of the additional data requirement for these two measures. All variables are defined in the Appendix. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests. Quarter and/or country fixed effects are included. Standard errors are clustered by fund.

	(1)	(2)
AQ	1.449***	
	(3.19)	
NegRelev		0.122***
		(4.20)
Age	0.037***	0.042***
	(3.02)	(2.97)
Size	-0.012	-0.009
	(-1.46)	(-1.15)
Div	-0.280***	-0.298***
	(-3.07)	(-3.27)
Volatility	0.699**	0.719**
	(2.40)	(2.55)
Expense	-1.810	-1.771
	(-1.15)	(-1.16)
Gains	0.010	0.025
	(0.39)	(1.20)
DMOwn	0.012	0.009
	(0.59)	(0.57)
Inst	0.140***	0.159***
	(2.64)	(3.60)
CNAV	0.009	-0.001
	(0.51)	(-0.02)
Turnover	-0.025***	-0.016*
	(-3.10)	(-1.90)
USMkt	-0.225	-0.347***
	(-1.41)	(-2.63)
FMkt	-0.069	-0.042
	(-1.45)	(-1.10)
Fxchg	0.077	0.142
	(0.41)	(1.29)
FinDev	0.063***	0.037**
	(3.75)	(2.42)
TaxComp	-0.124	-0.0462
	(-1.37)	(-0.55)
Popularity	-0.068	-0.109*
	(-1.08)	(-1.66)
Integrate	-0.083	-0.073
	(-0.92)	(-0.82)

Disclosure	0.032	-0.062
	(0.29)	(-0.63)
Protection	-0.141	-0.190
	(-0.68)	(-1.07)
GDPGrowth	-0.462**	-0.081
	(-2.17)	(-0.59)
Intercept	0.154	0.364
	(0.51)	(1.36)
Quarter FE	Yes	Yes
Country FE	Yes	Yes
N	626	792
Adj. R^2	0.433	0.410