obtain, both initially and each year thereafter, representations from each AP Representative "related to the confidentiality of the Fund's Creation Basket and portfolio securities, the effectiveness of information barriers, and the adequacy of insider trading policies and procedures."[118] For reporting purposes, the books and records of each Confidential Account would be maintained by the AP Representative and provided or made available to the appropriate regulatory agency as required.

Before the commencement of market trading each Business Day, the AP Representatives of each Fund would be provided with (a) the names and quantities of the instruments constituting the Fund's Creation Basket and the estimated Balancing Amount for that day and (b) the identities and quantities of portfolio securities that will form the basis for the Fund's calculation of NAV on that day. Acting on execution instructions from an Authorized Participant that is its customer, an AP Representative would purchase or sell the Fund's Creation Basket securities to effect irrevocable orders to purchase or redeem Creation Units of Fund shares on behalf of the transacting Authorized Participant. In its purchases and sales for Confidential Accounts, an AP Representative would be required to "obfuscate" the accounts' trading activity "by use of tactics such as breaking the purchase [or sale] into multiple purchases and transacting in multiple marketplaces." Each Confidential Account would be liquidated daily, "so that the account holds no positions at the end of day."[119]

Although not discussed in the Proposal Documents, each AP Representative would be required to establish and implement special procedures for the handling of Creation Basket securities that are not eligible for trading (Restricted Securities) by one or more of its Confidential Account customers (and other investors on whose behalf those customers create and redeem Fund shares) (together, Restricted Traders). The AP Representative would be charged with ensuring that no Restricted Securities are distributed in redemption to any Restricted Trader, and that no purchases of Fund shares by any Restricted Trader would require the delivery of Restricted Securities, in each case substituting cash for the Restricted Securities. Careful coordination among the Funds, the AP Representatives and their (direct and indirect) Confidential Account holders would be necessary to meet Restricted Traders' compliance obligations with respect to the Restricted Securities.

Compared to the usual manner in which Authorized Participants and other market makers effect in-kind purchases and redemptions of ETF shares, the proposed Confidential Account arrangement exposes Authorized Participants and other market makers to significant additional costs, risks and lost opportunities. These include:

- *Significant incremental costs will be required to operate Confidential Accounts, which AP Representatives will pass through to Authorized Participants and other market makers.* AP Representatives operating Confidential Accounts will be subject to significant incremental costs. To maintain compliance with "fire wall" obligations and federal securities law, each AP Representative will be required to employ one or dedicated CA Traders for each Fund, who would not be permitted to trade in any of the Fund's Creation Basket securities for any other customer (including other Funds). Each Fund's CA Traders must be isolated (physically and electronically) from all other broker-dealer personnel, and their activities must be monitored to ensure compliance with contractual agreements and securities laws requirements relating to the protection and use of material, non-public information. AP Representatives will be subject

[118] *See* footnote 12 to the Exemptive Application at page 10.

[119] *ibid* at page 12.

to additional ongoing costs in connection with maintaining the books and records of Confidential Accounts and implementing procedures to prevent trading in Restricted Securities in Confidential Accounts. AP Representatives will surely seek to pass through to Authorized Participants their higher costs of operating Confidential Accounts. Competition among broker-dealers seeking to serve as AP Representatives is not likely to serve as a significant constraint on AP Representatives' ability to pass through their added costs.

- *No ability for Fund market makers to use their market knowledge and their positions in other securities to enhance the quality of their trade executions in Creation Basket securities.* Market makers don't manage their ETF creations and redemptions in a vacuum. Market makers' other activities – making markets in other ETFs and individual securities, lending and borrowing securities, managing risk across their entire book of business – frequently create opportunities to lower the costs and increase the profitability of creations and redemptions and related securities transactions. When transacting on a blind basis through Confidential Accounts, Fund market makers cannot use any market intelligence they have or any other positions they hold to enhance trade execution quality in the Creation Basket securities.

- *Less incentive for third-party service providers to trade Creation Basket securities expeditiously and with low market impact.* This is a classic agency problem. No AP Representative could ever match the vested interest a profit-motivated market maker would have in ensuring consistently high levels of trading performance in the market maker's own account.

- *Limited flexibility and imposed constraints on how Creation Basket securities trades are executed*. Trades in Creation Basket securities through Confidential Accounts would be subject to significant constraints that could adversely affect trade execution quality, including the requirements for AP Representatives to "obfuscate" trades in Confidential Accounts and to liquidate all positions held in Confidential Accounts at the end of each Business Day.

- *Slower trade executions*. Given the more involved routing of trade instructions and trade orders that the Confidential Account structure would necessitate (particularly for Non-Authorized Participant Market Makers and other arbitrageurs), Creation Unit securities transactions through Confident Accounts will almost certainly take longer, on average, for a market maker to execute than similar transactions that the market maker could execute internally. In trading, time is money.

- *No ability for Fund market makers to monitor trading in Confidential Accounts to ensure best execution or to evaluate trading performance.* The blind nature of the trading relationship means market makers will have no ability to monitor the performance of trades made on their behalf to ensure best execution.[120] No customer transparency means less trader accountability, and the likelihood of worse trading results.

- *Less efficient use of Authorized Participant net capital*. Broker-dealers are required by Rule 15c3-1 under the Securities Exchange Act to maintain at least a prescribed minimum amount of

[120] *See* comment letter of Professor Kevin S. Haeberle (December 15, 2017) at pages 19-22 for a discussion of securities law issues arising from the Authorized Participants inability to ensure best execution of their trades through Confidential Accounts. Available at https://www.sec.gov/comments/sr-nysearca-2017-36/nysearca201736-2808360-161694.pdf.

net capital at all times, including throughout each Business Day on a "moment-to-moment" basis. In computing net capital, the securities positions held by broker-dealers are subject to "haircuts" ranging from 0 percent to 100 percent, depending on the security type and maturity. To compute its net capital on a continuous intraday basis, a broker-dealer must be able to determine both the value of each securities position held and the appropriate haircut for each, which is problematic for the Funds' Authorized Participants with respect to their securities positions in Confidential Accounts. The Funds propose to address this by disclosing daily on their website "the maximum Securities Haircut applicable to the securities in a Creation Basket, as determined under Rule 15c3-1."[121] These disclosures would not permit Authorized Participants to fully recognize the value of securities held through Confidential Accounts for purposes of meeting their broker-dealer capital requirements. One of the most precious assets of any broker-dealer is its regulatory capital; forcing Authorized Participant to employ their capital less efficiently is an added cost for them of transacting through Confidential Accounts.

On an overall basis, the Funds' requirement that market makers transact on a blind basis through Confidential Accounts to effect trades in Creation Basket securities imposes significant costs and risks on market makers and limits their opportunities for profitable trading. Market makers will respond in one of two ways – either (a) not participating in Fund market making or (b) making markets in Fund shares only at wider bid-ask spreads and more variable premium/discount levels. The increased costs and risks and loss of control that the Confidential Account arrangement imposes on market makers will invariably translate into worse Fund trading performance.

Share Trading Halts. The Filing and Exemptive Application describe specific circumstances under which, upon receipt of notice from a Fund or its agent, the Exchange would halt intraday trading in the Fund's shares: (a) the Fund's VIIVs are not being calculated and disseminated in one-second intervals; (b) the Fund's Pricing Verification Agent has determined that the intraday indicative values calculated by different Calculation Engines vary by more than 25 bps for 60 second;[122] and (c) securities representing 10 percent or more of a Fund's portfolio themselves become subject to a trading halt.[123] These "circuit breakers" are designed to prevent trading in Fund shares during periods in which VIIVs are unavailable or may be unreliable. The Filing also provides that the Exchange would have broad discretion to halt trading in Fund shares whenever otherwise deemed appropriate.[124]

Circumstances under which a Funds' shares could be subject to trading halts include: (a) interruptions or delays in CQS data transmissions to any of the Calculation Engine operators or the Pricing Verification Agent; (b) interruptions or delays in VIIV data transmissions from the Pricing Verification Agent to the Exchange and the Consolidated Tape; and (c) halts in trading or disruptions in the availability of current quotes for one or more securities held by the Fund. Although the Exemptive

[121] *See* footnote 11 to Filing at page 11.

[122] Footnote 44 to the Exemptive Application at page 25 provides that the trading halt would remain in effect "until the two indicative values comes back into line."

[123] *ibid* footnote 45 at page 26.

[124] The Exchange may "consider all relevant factors in exercising its discretion to halt or suspend trading in the Shares of the Funds," including if "circuit breaker parameters . . . have been reached," due to "market conditions" or "for reasons that, in the view of the Exchange, make trading in the Shares inadvisable." Trading in Fund shares will also be halted if "the Exchange becomes aware that the net asset value is not being disseminated to all market participants at the same time." *See* Filing footnote 5 at page 6 and page 29.

Application provides that halts in trading of a Fund's shares would only be required if 10 percent or more of the Fund's holdings become subject to a trading halt, the reliability of the Fund's VIIVs as a basis for current trading in Fund shares would surely become suspect at a much lower level of halt activity in Fund holdings. In practice, I believe even a minimal level of quote disruptions or trading halts in a Fund's holdings would force the Fund itself to halt trading in its shares.

It is worth noting that shareholders of existing ETFs do not face the risk of trading halts due to discontinuous or unreliable IIVs. Because the arbitrage mechanism of existing ETFs does not depend on IIVs, their shares can continue to trade smoothly and efficiently without reliable indicative intraday values being continuously available. Not so the Funds.

If trading in a Fund's shares is frequently interrupted by trading halts, severe damage to the Fund's ongoing liquidity and trading efficiency would result. In the Proposal Documents, the Applicants do not suggest that they have tested the reliability of the proposed VIIV pricing and dissemination process or examined how frequently trading halts are likely to occur. Until demonstrated otherwise, I believe there is much reason to expect the Funds to trade less continuously than existing active ETFs, with more frequent interruptions in trading, particularly during periods of market stress and volatility.

Trading Performance during Periods of Market Stress and Volatility. A critical test for the liquidity of any exchange-traded security is what happens to trading performance during times of market stress and volatility. Do bid-ask spreads gap out and the depth of price quotes diminish? Or are efficient markets maintained? There are many reasons to believe that Fund shares will trade especially poorly during periods of market stress and volatility. As described above in this section, during period of market stress and volatility, Fund market makers will increasingly question:

- the reliability of VIIVs as measures of the real-time value of a Fund's underlying holdings;
- their ability to offset the risk of their positions in Fund shares using Macro Hedges; and
- their ability to efficiently execute trades in Creation Basket securities on a blind basis through Confidential Accounts.

As Fund market makers lose confidence in their trading positions during periods of market stress and volatility, they will invariably respond by: (a) widening the bid-ask spreads at which they quote Fund shares; (b) reducing the amount of capital they put at risk by shrinking the size of their Fund share quotes; and/or (c) withdrawing altogether from making markets in Fund shares. Compared to existing ETFs, the Funds will be at much greater risk of collapses in share trading efficiency during volatile market periods. In fact, I believe collapses in the liquidity of Fund share trading during periods of market stress and volatility are inevitable – *a foregone conclusion*.

As an additional threat to the liquidity of Fund shares during periods of market stress and volatility, halts in Fund share trading are most likely to occur during stressed market conditions. Either way, a collapse in trading efficiency or trading halts – mark my words, *the liquidity of Fund shares during periods of market stress and volatility will surely disappoint.*

Conclusion. Market makers will face significant impediments to successfully arbitraging Fund shares. Different from existing ETFs, a Fund's market makers must rely on VIIVs calculated and disseminated by third parties to estimate intraday Fund values. Compared to the internal valuations that ETF market makers now generate from daily fund holdings disclosures, the proposed VIIVs would provide intraday valuations that are significantly less precise, less robust, less continuous, less timely, more prone to errors, more subject to agency risks and would expose market makers to potentially unrecoverable losses in the event of erroneous, delayed or discontinuous VIIVs.

In addition to the challenges to efficient market making raised by the proposed reliance on VIIVs as the only available intraday valuation metric, the Proposal would remove market makers' ability to control their own trading in underlying Fund assets in connection with their creations and redemptions, and force them to rely upon Macro Hedges subject to unknown and potentially significant basis risk to manage their intraday Fund exposures. The deficiencies of VIIVs as intraday price signals, market makers forced reliance on Macro Hedges to managing their intraday Fund exposures, and the higher costs and loss of execution control over transactions in Creation Basket securities effected through Confidential Accounts will significantly curtail effective market making in the Funds' shares.

Reflecting the impediments to effective market making, the Funds are likely to attract less market maker interest, and market makers that do become involved will impose high profit hurdles to compensate for their added costs and risks. As a result, the Funds will certainly trade worse (with notably wider bid-ask spreads and more variable premiums and discounts) than existing active equity ETFs,[125] which themselves trade consistently worse than similar equity index ETFs. There is also reason to expect the Funds to trade less continuously than existing active ETFs, with more frequent halts in Fund share trading. During periods of market stress and volatility, the Fund shares will be especially vulnerable to collapses in trading efficiency and trading halts. On an overall basis, the Proposal falls well short of meeting an appropriate secondary market liquidity standard, and should not be approved for this and other reasons stated in this letter.

7. <u>The Proposal exposes Fund shareholders to significant new costs and substantial liabilities and risks not present for existing ETFs.</u>

One of the asserted "significant advantages" of the proposed Funds over similarly invested mutual funds is the potential for "lower operational costs" due to savings in transfer agency fees and shareholder account maintenance expenses based on the Funds' use of an exchange-traded structure.[126] Offsetting the assumed transfer agency and account maintenance cost savings will be the costs incurred by the Funds in connection with (a) the calculation, verification and dissemination of VIIVs at one-second intervals throughout the Exchange's Core Trading Session each Business Day and (b) the dissemination of the Fund's confidential portfolio holdings information to AP Representatives, Calculation Engine operators, Pricing Verification Agents, other Fund service providers and oversight authorities each Business Day. In addition to increasing the Funds' ongoing operating costs, these novel elements of the Funds' proposed structure expose shareholders to added liabilities and risks that could prove quite substantial.

[125] This is consistent with the understanding expressed in the Staff Letter responding to the Applicants' Second Proposal that "an ETF which has something less than full portfolio transparency will *always* [emphasis added] exhibit a greater and more persistent premium or discount and wider intraday price spread than an identical product with full portfolio transparency." (*see* footnote 20 on page 5 of the Staff Letter available at http://www.nextshares.com/regulatory-and-technical-documents.php#other_structures.)

[126] *See* Exemptive Application at page 6.

VIIV-Related Costs. Mutual funds do not provide any intraday values, and the IIVs of existing ETFs are less frequently disseminated and subject to less stringent calculation standards than the Applicants propose for the Funds' VIIVs. The principal distinctions between the Funds' proposed VIIV methodology and the standard IIV practices of existing ETFs include: (a) calculating and disseminating intraday Fund valuations at one-second intervals (23,400 valuations per day) instead of 15-second intervals (1,560 valuations per day); (b) using two or more different Calculation Engines to calculate intraday values; (c) engaging a Pricing Verification Agent and establishing and maintaining a computer-based protocol to permit the Pricing Verification Agent to continuously compare the intraday values from each Calculation Engine on a real-time basis and to institute a trading halt in Fund shares whenever valuation differences of at least 25 bps persist for 60 seconds;[127] (d) generally valuing securities held by each Fund based on the midpoint between the current national best bid and offer quotations rather than last sale price; (e) for securities subject to pending corporate actions, basing VIIVs on positions held as of the beginning of the current Business Day (rather than at the close of the prior Business Day); (f) whenever the market quotations for a security are determined not to be a reliable basis for calculating VIIVs, convening a meeting of the Fund's Fair Valuation Committee to "make a good faith pricing determination using a methodology approved by the Board of the Fund" and generally applying such fair values to the security in subsequent VIIV calculations;[128] and (g) seeking to include in the VIIV calculation "all accrued income and expenses of a Fund and . . . any extraordinary expenses, booked during the day, that would be taken into account in calculating the Fund's NAV for that day."[129]

Comparing the Funds' proposed VIIV methodology to the IIV practices of existing ETFs, there seems little doubt that the Funds' approach will be significantly more costly than what ETFs customarily pay in connection with their IIVs.

Selective Disclosure Costs. The Funds will incur ongoing costs not borne by other ETFs in connection with the dissemination of the Fund's confidential portfolio holdings information to AP Representatives, Calculation Engine operators, Pricing Verification Agents, other Fund service providers and oversight authorities each Business Day. In addition to the (presumably modest) daily cost to securely transmit each Fund's confidential portfolio holdings information to each of the intended recipients (and not to anyone else), regular interactions with each AP Representative and other confidential data recipients will be required to maintain contractual agreements and certifications. Although not discussed in the Proposal Documents, the Funds may seek (or be required) to monitor the AP Representatives and other recipients of confidential Fund data to test and verify compliance with contractual and federal securities law requirements for the use and protection of the Funds' confidential portfolio holdings information. Depending on how extensive a compliance monitoring program is maintained, the Funds may incur significant ongoing costs in connection with the selective disclosure of their confidential portfolio holdings information.

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[127] The Pricing Verification Agent would also be responsible for notifying a Fund's Adviser whenever a trading halt is instituted for any portfolio securities (*see* Exemptive Application at page 24).

[128] *See* Exemptive Application at page 25. "In cases where the fair value price of the security is materially different from the most recent quoted price and the Adviser has determined that the ongoing pricing information is not likely to be reliable, the fair value will be used for calculation of the VIIV, and the Custodian will be instructed to disclose the identity and weight of the fair valued securities, as well as the fair value price being used for the security."

[129] *ibid* at pages 24-25. It is my understanding that ETF IIVs do not always fully reflect all fund income and expenses that would be included in the ETF's NAV on that day.

How meaningful are the incremental Fund costs in connection with VIIVs and daily selective disclosures likely to be? Will these added costs negate the savings in transfer agency fees and shareholder maintenance expenses that the Applicants represent that the Funds will provide? The Proposal Documents do not say. While no information is provided, it seems likely that the Funds' proposed VIIV calculation, verification and dissemination methodology and daily selective disclosures will expose the Funds to *significantly higher ongoing costs* than existing ETFs.

<u>VIIV-Related Liabilities and Risks</u>. The Filing provides that the Fund or its agent "*shall be responsible* [emphasis added] for monitoring that the [VIIV] is being priced and disseminated as required."[130] The Exemptive Application similarly provides that "each Fund will adopt procedures governing the calculation and dissemination of the VIIV and *will bear responsibility* [emphasis added] for the oversight of the process."[131]

A Fund's potential liability for VIIV-related damages attributable to the intraday pricing feed used in calculating the VIIVs (but not other sources of VIIV-related damages) may be limited by the assertion in the Exemptive Application that "the Fund will not be responsible, and will expressly disclaim liability for errors in the VIIV resulting from errors, omissions or interruptions of data provided by the CQS."[132] Even with this carve-out, it is not hard to imagine circumstances under which market participants that have incurred trading losses attributable to erroneous, delayed or discontinuous VIIVs could have large (multi-million dollar) claims against a Fund.

Notably absent from the current version of the Exemptive Application are the Applicants' prior words of comfort that "to the extent that any Fund might be found liable for an error in the calculation or dissemination of the VIIV, it anticipated that *the Fund will have appropriate errors and omissions insurance* [emphasis added] that would serve to protect the assets of the Fund from any such claim."[133]

Similarly removed from the current Exemptive Application are the former representations that "each Independent Pricing Agent *shall at all times be required, by contract, to act in good faith and to exercise reasonable care, diligence and the expertise* [emphasis added] of an Independent Pricing Agent" and that "it is anticipated that under the terms of such contracts with the Independent Pricing Agents and Pricing Verification Agent, *each shall be liable* [emphasis added] to the Fund (or any person or entity claiming through or for the Fund) for loss, cost, expense and damages caused by an error in the calculation or dissemination of the VIIV resulting from a breach of the applicable contract to the extent the breach constitutes bad faith, willful misconduct, reckless disregard or negligence in the performance of its obligations."[134]

What to make of these deletions? I suspect that, upon investigation, the Applicants found that (a) "appropriate errors and omissions insurance" would not be available to the Funds on commercially reasonable terms and (b) no potential Pricing Verification Agent or other VIIV-related service providers would agree to be engaged by the Funds under the previously proposed liability terms.

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[130] *See* Filing at page 7.

[131] *See* Exemptive Application at page 24.

[132] *ibid* at pages 13-14.

[133] *See* May 2017 Exemptive Application at page 12.

[134] *ibid.*

Without insurance, what party bears responsibility for liabilities relating to VIIVs? If plaintiffs successfully prove damages from losses in trading Fund shares in reliance on erroneous, delayed or discontinuous VIIVs, who pays? When all other parties involved disclaim or limit their liability, payment obligations fall to one place — the Fund and its shareholders.[135]

Selective Disclosure-Related Liabilities and Risks. Although ignored in the Proposal Documents, it is not hard to imagine circumstances under which a Fund could incur significant liabilities related to its selective disclosure of confidential portfolio holdings information. Most obviously, if there is a data security breach, the Fund could be subject to front-running by market participants who gain access to the Fund's proprietary trading strategies. In addition, data breaches or failure to provide adequate protection against illegal insider trading based on a Fund's selective disclosures could expose the Fund to damages in connection with regulatory actions and private lawsuits. Unless the Adviser or other third party assumes responsibility, payment obligations for any fines, settlements or court awards again fall to one place — the Fund and its shareholders.

Conclusion. The Funds' proposed structure and method of operation introduce significant new costs, liabilities and risks to shareholders in connection with the calculation and public dissemination of VIIVs and the selective private disclosure of the Funds' confidential portfolio holdings information. These novel aspects of the Funds' structure and operation will cost money — exposing shareholders to unspecified amounts of new expenses that will diminish, if not negate, the Funds' claimed cost advantages. Moreover, the Funds' new and untested structure involves liabilities and risks, again unquantified in the Proposal, that could expose Fund shareholders to large losses under foreseeable circumstances. For these reasons, as well as the many others described in this letter, the Proposal should not be approved.

8. The Proposal is overreaching in scope and fails to provide adequate investor information.

Scope of Proposal. The Proposal seeks authorization to offer, list and trade Funds holding long and short positions in substantially all types of U.S. exchange-listed securities, including shares of other U.S.-listed ETFs.[136] As proposed, each Fund could invest up to 5 percent of total assets in warrants, rights and options that are listed on a U.S. exchange, could invest a portion of its assets in cash or cash equivalents, and could invest in securities of other investment companies to the extent allowed by law.[137] Like registered open-end funds generally, up to 15 percent of each Fund's assets could be illiquid. The three initial Funds that the Filing seeks permission to list and trade each would invest primarily in U.S. small-cap stocks with market capitalizations of $3 billion or less.[138]

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135 The Exchange makes clear that neither it nor any of its agents or Reporting Authority bears any liability for "damages, claims, losses or expenses caused by any errors, omissions, or delays in calculating or disseminating" of the VIIV or other portfolio information (*see* Filing at page 8).

136 Footnote 7 on page 7 of the Exemptive Application provides that "although the Funds may invest in securities of companies of any capitalization, the Funds do not intend to invest in small capitalization companies listed on the Nasdaq Capital Market." Page 17 of the Filing provides that "a Fund will not invest in leveraged (e.g., 2X, -2X, 3X or -3X) ETFs."

137 *See* Filing at page 16.

138 *See* Registration Statement at pages 2-9. The Exemptive Application and Registration Statement provide for an additional five series of the Trust that would invest primarily in long and short positions in equity securities of various descriptions.

In the Applicants' First Proposal, the Applicants asserted that "the nature of the markets in the component securities . . . will be primarily determinant of premiums or discounts"[139] and noted that "the large and medium capitalization exchange traded equity securities in which the Funds plan to invest will generally be highly liquid and actively traded."[140] Further, "because a Fund will generally invest in large and medium capitalization equity securities that are highly liquid and have pricing information readily available in the marketplace, the Fund is able to provide shareholders a reliable [indicative intraday valuation] calculation and therefore, an effective hedging mechanism."[141]

Although the current Proposal differs from the Applicants' First Proposal in a number of respects, it remains the case that the liquidity and level of trading activity in a Fund's underlying holdings will be a primary determinant of the Fund's secondary market trading efficiency. In evaluating the Funds' proposed investments and comparing them to the Applicants' prior statements, there are notable inconsistencies. Most obviously, introducing Funds focused on investing in small-cap stocks as the initial embodiment of a new type of ETF whose trading efficiency is understood to depend critically on the liquidity of the underlying holdings is profoundly inappropriate. Moreover, a Fund's potential investment of up to 15 percent in illiquid assets is clearly inconsistent with the need for continuous active trading in the Fund's underlying investments to maintain efficient trading in Fund shares.

In addition, although the Funds' permissible ETF investments are proposed to be limited to U.S.-listed ETFs, the only stated restriction on the types of U.S.-listed ETFs a Fund could hold is a prohibition against investing in leveraged ETFs. The Petajisto Study and the attached Exhibits to this letter show that the prices at which investors buy or sell shares of existing ETFs often vary significantly from the current value of the ETF's portfolio. Not surprisingly, the difference is frequently greatest for funds holding foreign equities and less-liquid fixed income instruments. Even though the initial Funds would not be permitted to invest in these instruments directly, they could hold them indirectly through positions in other ETFs. As the Petajisto Study, the attached Exhibits and other research demonstrate, ETF trading prices are often a relatively poor measure of underlying value. Because a Fund's VIIVs can only be as valid as the inputs used in their calculation, any Fund that owns positions in ETFs holding foreign equities and/or less-liquid fixed income instruments may be subject to significant mispricing.

Adequacy of Investor Information. The Proposal provides that VIIVs will be "widely disseminated by one or more major market data vendors every second during the Exchange's Core Trading Session,"[142] consistent with the current dissemination requirements for IIVs of existing ETFs.[143] Given the much greater importance of VIIVs to the Funds and their shareholders, it is essential that all Fund shareholders have ongoing access to current VIIVs. Information is rarely useful to an investor if the investor does not have ready, consistent and free access to it. It does most investors no good to have VIIVs disseminated every second if they have to own a Bloomberg terminal to see them. It should be a requirement for approval of the Proposal that each Fund's current VIIVs are provided at no charge on a

[139] *See* File No. 812-14116 (July 23, 2013) at page 25.

[140] *ibid* at page 21.

[141] *ibid*.

[142] *See* Filing at page 11.

[143] Certain ETF sponsors provide real-time intraday fund values on their public website or support dissemination of intraday fund values through other public websites.

In closing, I wish to thank the Commissioners and staff of the SEC for consideration of the views and opinions expressed in this letter and the information provided.

Sincerely,

Gary L. Gastineau

Gary L. Gastineau
President, ETF Consultants.com, inc.

Exhibit 1-1: Measures of ETF Investor Trading Costs: 2017

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**37**	**386**	**1,384**	**1,374,105**	**9**	**30,867**	**0.21**	**0.21**	**0.14**	**0.02**	**0.14**	**0.02**	**0.28**	**0.27**	**0.17**	**0.03**	**0.16**	**0.03**
Large Blend	18	125	706	669,269	5	19,466	0.18	0.27	0.13	0.02	0.13	0.02	0.23	0.35	0.15	0.03	0.14	0.02
Large Growth	5	36	120	158,836	1	4,449	0.24	0.12	0.15	0.02	0.16	0.02	0.38	0.16	0.18	0.03	0.20	0.03
Large Value	6	70	116	201,055	1	1,524	0.27	0.16	0.17	0.02	0.16	0.02	0.37	0.21	0.22	0.03	0.21	0.03
Mid-Cap Blend	4	34	212	110,527	1	752	0.16	0.18	0.15	0.03	0.15	0.03	0.19	0.21	0.18	0.03	0.18	0.03
Mid-Cap Growth		24		26,182		99		0.14		0.03		0.04		0.21		0.04		0.04
Mid-Cap Value	2	23	199	49,433	1	186	0.12	0.13	0.11	0.03	0.12	0.03	0.13	0.19	0.13	0.04	0.13	0.03
Small Blend		42		106,069		4,024		0.32		0.04		0.04		0.44		0.05		0.04
Small Growth	2	12	31	21,442	0	152	0.42	0.12	0.33	0.04	0.35	0.04	0.67	0.16	0.50	0.06	0.54	0.06
Small Value		20		31,292		217		0.12		0.04		0.04		0.16		0.05		0.05
US EQUITY SECTORS	**12**	**308**	**2,641**	**367,022**	**28**	**12,715**	**0.18**	**0.19**	**0.11**	**0.06**	**0.15**	**0.07**	**0.20**	**0.21**	**0.11**	**0.06**	**0.14**	**0.08**
Commodities Industrial Metals		2		290		4		0.22		0.20		0.20		0.31		0.28		0.28
Communications		5		2,361		35		0.10		0.07		0.08		0.12		0.10		0.10
Consumer Cyclical		23		20,107		777		0.15		0.03		0.04		0.21		0.04		0.05
Consumer Defensive		17		15,360		602		0.28		0.03		0.03		0.30		0.04		0.04
Energy Limited Partnership	2	8	2,226	11,390	19	136	0.15	0.16	0.10	0.12	0.14	0.12	0.14	0.20	0.10	0.16	0.13	0.16
Equity Energy		26		28,691		1,732		0.20		0.04		0.04		0.25		0.05		0.05
Equity Precious Metals		12		14,989		1,721		0.34		0.24		0.23		0.48		0.32		0.31
Financial	1	29	65	52,155	1	2,282	0.22	0.09	0.22	0.05	0.22	0.05	0.13	0.12	0.13	0.06	0.13	0.06
Health	1	33	26	48,681	0	1,327	0.20	0.18	0.20	0.04	0.20	0.04	0.27	0.23	0.27	0.05	0.27	0.05
Industrials		23		25,008		784		0.13		0.03		0.03		0.19		0.05		0.04
Miscellaneous Sector	2	23	9	5,803	0	50	0.19	0.29	0.23	0.20	0.17	0.27	0.23	0.30	0.32	0.20	0.19	0.25
Natural Resources		32		18,983		440		0.27		0.12		0.07		0.33		0.13		0.09
Real Estate	1	21	26	54,328	0	1,001	0.19	0.15	0.19	0.03	0.19	0.03	0.27	0.20	0.27	0.04	0.27	0.04
Technology	4	42	275	56,185	7	1,139	0.15	0.17	0.16	0.03	0.16	0.04	0.14	0.00	0.14	0.00	0.14	0.00
Utilities	1	12	15	12,691	0	686	0.24	0.17	0.24	0.03	0.24	0.03	0.38	0.21	0.38	0.04	0.38	0.04
INTERNATIONAL EQUITY	**14**	**473**	**947**	**621,707**	**7**	**10,115**	**0.52**	**0.44**	**0.50**	**0.26**	**0.42**	**0.30**	**0.46**	**0.40**	**0.38**	**0.20**	**0.29**	**0.31**
China Region		40		14,435		915		0.54		0.34		0.35		0.63		0.43		0.45
Diversified Emerging Mkts	1	72	47	146,419	0	3,118	0.50	0.52	0.50	0.33	0.50	0.35	0.28	0.49	0.28	0.34	0.28	0.38
Diversified Pacific/Asia	1	5	22	5,388	0	28	0.56	0.35	0.56	0.19	0.56	0.18	0.43	0.45	0.43	0.19	0.43	0.18
Europe Stock	1	36	76	52,472	1	779	0.47	0.45	0.47	0.17	0.47	0.17	0.29	0.46	0.29	0.19	0.29	0.20
Foreign Large Blend	5	60	330	237,501	3	2,172	0.40	0.45	0.42	0.20	0.42	0.20	0.34	0.00	0.27	0.00	0.26	0.00
Foreign Large Growth	1	11	82	4,361	1	24	0.27	0.40	0.27	0.26	0.27	0.27	0.19	0.40	0.19	0.24	0.19	0.23
Foreign Large Value		30		20,156		90		0.36		0.26		0.26		0.30		0.25		0.25
Foreign Small/Mid Blend		8		15,967		80		0.43		0.29		0.29		0.44		0.24		0.25
Foreign Small/Mid Value		8		2,139		7		0.48		0.35		0.36		0.41		0.28		0.29
Global Real Estate	1	11	1	12,013	0	68	0.88	0.24	0.88	0.20	0.88	0.20	0.78	0.28	0.78	0.18	0.78	0.19
India Equity		9		8,609		165		0.47		0.42		0.41		0.55		0.52		0.52
Japan Stock		25		29,592		580		0.43		0.38		0.37		0.53		0.50		0.49
Latin America Stock		8		7,609		713		0.40		0.39		0.42		0.50		0.55		0.59
Miscellaneous Region	1	94	10	32,418	0	1,052	1.27	0.42	1.27	0.30	1.27	0.33	1.44	0.49	1.44	0.40	1.44	0.44
Pacific/Asia ex-Japan Stk		12		8,099		109		0.44		0.35		0.35		0.46		0.40		0.41
World Stock	3	44	381	24,528	1	213	0.47	0.36	0.60	0.13	0.47	0.12	0.44	0.32	0.51	0.12	0.37	0.12

Exhibit 1-2: Measures of ETF Investor Trading Costs: 2016

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**29**	**332**	**1,201**	**1,012,433**	**6**	**34,845**	**0.23**	**0.19**	**0.15**	**0.03**	**0.15**	**0.02**	**0.32**	**0.26**	**0.17**	**0.04**	**0.17**	**0.03**
Large Blend	11	94	318	490,019	2	23,996	0.24	0.23	0.16	0.02	0.16	0.02	0.37	0.29	0.17	0.03	0.17	0.03
Large Growth	3	35	103	122,047	0	3,594	0.30	0.20	0.21	0.02	0.17	0.02	0.40	0.27	0.24	0.03	0.19	0.03
Large Value	4	63	57	148,962	1	1,723	0.28	0.13	0.19	0.03	0.19	0.03	0.37	0.19	0.24	0.04	0.24	0.03
Mid-Cap Blend	5	32	414	83,226	2	826	0.16	0.14	0.13	0.03	0.12	0.03	0.18	0.20	0.14	0.04	0.13	0.04
Mid-Cap Growth	1	23	38	21,828	0	118	0.09	0.18	0.09	0.04	0.09	0.04	0.11	0.27	0.11	0.05	0.11	0.05
Mid-Cap Value	2	23	232	38,563	1	220	0.12	0.14	0.12	0.03	0.12	0.03	0.12	0.21	0.12	0.05	0.12	0.04
Small Blend	1	30	14	70,586	0	3,928	0.25	0.38	0.25	0.04	0.25	0.04	0.32	0.43	0.32	0.05	0.32	0.05
Small Growth	2	12	25	15,724	0	176	0.31	0.12	0.39	0.04	0.36	0.04	0.54	0.16	0.67	0.05	0.62	0.05
Small Value		20		21,479		265		0.15		0.04		0.04		0.21		0.05		0.05
US EQUITY SECTORS	**9**	**323**	**1,404**	**288,778**	**9**	**14,396**	**0.36**	**0.24**	**0.14**	**0.07**	**0.21**	**0.10**	**0.53**	**0.31**	**0.16**	**0.09**	**0.24**	**0.13**
Commodities Industrial Metals		2		172		3		0.31		0.22		0.22		0.54		0.31		0.31
Communications		6		2,584		39		0.15		0.08		0.07		0.21		0.11		0.09
Consumer Cyclical		26		19,031		929		0.20		0.04		0.04		0.27		0.05		0.06
Consumer Defensive		17		17,417		757		0.22		0.04		0.04		0.31		0.05		0.05
Energy Limited Partnership	1	9	82	8,979	2	124	0.68	0.24	0.68	0.16	0.68	0.15	0.86	0.34	0.86	0.21	0.86	0.20
Equity Energy	1	26	1,232	26,605	7	2,124	0.10	0.25	0.10	0.05	0.10	0.05	0.08	0.34	0.08	0.07	0.08	0.07
Equity Precious Metals		12		12,877		2,466		0.52		0.35		0.33		0.67		0.47		0.45
Financial		32		31,168		1,818		0.18		0.05		0.05		0.25		0.07		0.06
Health	1	35	7	39,732	0	1,888	0.55	0.18	0.55	0.04	0.55	0.05	0.84	0.26	0.84	0.06	0.84	0.07
Industrials		23		13,835		791		0.17		0.04		0.04		0.24		0.06		0.06
Miscellaneous Sector	1	24	6	3,516	0	16	0.30	0.35	0.30	0.21	0.30	0.27	0.52	0.40	0.52	0.24	0.52	0.33
Natural Resources		33		12,672		507		0.31		0.15		0.08		0.41		0.19		0.14
Real Estate	1	21	29	49,626	0	1,159	0.26	0.18	0.26	0.04	0.26	0.04	0.36	0.23	0.36	0.05	0.36	0.08
Technology	3	44	38	37,232	0	902	0.37	0.22	0.37	0.04	0.37	0.04	0.58	0.28	0.58	0.05	0.58	0.06
Utilities	1	13	11	13,333	0	874	0.23	0.23	0.23	0.04	0.23	0.03	0.35	0.30	0.35	0.05	0.35	0.05
INTERNATIONAL EQUITY	**14**	**477**	**159**	**442,940**	**2**	**10,835**	**0.59**	**0.60**	**0.62**	**0.41**	**0.64**	**0.52**	**0.62**	**0.72**	**0.62**	**0.52**	**0.58**	**0.68**
China Region	1	36	1	12,303	0	1,071	1.00	0.80	1.00	0.69	1.00	0.75	1.36	0.93	1.36	0.92	1.36	1.02
Diversified Emerging Mkts	1	71	4	92,001	0	3,355	0.62	0.69	0.62	0.51	0.62	0.58	0.43	0.80	0.43	0.63	0.43	0.73
Diversified Pacific/Asia	1	6	18	3,768	0	32	0.62	0.58	0.62	0.27	0.62	0.25	0.63	0.71	0.63	0.36	0.63	0.33
Europe Stock	1	42	19	46,655	0	845	0.58	0.56	0.58	0.27	0.58	0.28	0.50	0.75	0.50	0.39	0.50	0.40
Foreign Large Blend	4	46	47	159,291	1	2,237	0.68	0.46	0.83	0.30	0.81	0.33	0.60	0.50	0.73	0.37	0.59	0.42
Foreign Large Growth	1	10	15	3,252	0	25	0.44	0.45	0.44	0.38	0.44	0.37	0.69	0.53	0.69	0.48	0.69	0.47
Foreign Large Value	1	37	35	12,422	0	81	0.51	0.43	0.51	0.39	0.51	0.39	0.57	0.49	0.57	0.48	0.57	0.48
Foreign Small/Mid Blend		9		10,325		64		0.52		0.39		0.39		0.57		0.47		0.48
Foreign Small/Mid Value	1	9	10	1,541	0	6	0.55	0.57	0.55	0.44	0.55	0.44	0.55	0.65	0.55	0.54	0.55	0.54
Global Real Estate	1	14	1	11,424	0	68	0.23	0.59	0.23	0.27	0.23	0.28	0.36	0.54	0.36	0.35	0.36	0.36
India Equity		9		6,536		166		0.62		0.57		0.58		0.78		0.75		0.76
Japan Stock		31		27,218		791		0.89		0.81		0.80		1.20		1.11		1.11
Latin America Stock		13		4,473		653		0.73		0.55		0.59		0.93		0.74		0.80
Miscellaneous Region	1	97	1	28,042	0	1,157	0.66	0.60	0.66	0.49	0.66	0.53	0.71	0.73	0.71	0.65	0.71	0.70
Pacific/Asia ex-Japan Stk		12		5,565		86		0.61		0.59		0.60		0.72		0.77		0.79
World Stock	1	35	7	18,126	0	196	0.39	0.46	0.39	0.17	0.39	0.17	0.54	0.45	0.54	0.21	0.54	0.22

Source: Morningstar, Inc. AETF means actively-managed ETF; IETF means index ETF.
EW means weighting all funds equally; AW means weighting funds by net assets; VW means weighting funds by dollar trading volume.
Note: Excludes ETNs, non-equity, leveraged, inverse, and inverse leveraged ETFs as well as premium/discount observations greater than 20% for included funds.

Exhibit 1-3: Measures of ETF Investor Trading Costs: 2015

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**27**	**289**	**1,222**	**902,925**	**9**	**39,057**	**0.29**	**0.16**	**0.16**	**0.03**	**0.16**	**0.03**	**0.44**	**0.24**	**0.23**	**0.05**	**0.23**	**0.04**
Large Blend	6	89	135	428,901	1	27,662	0.34	0.21	0.28	0.03	0.25	0.02	0.65	0.31	0.55	0.04	0.42	0.03
Large Growth	5	27	112	116,940	2	3,991	0.33	0.14	0.24	0.03	0.14	0.03	0.48	0.20	0.34	0.06	0.18	0.04
Large Value	5	56	91	125,450	1	1,846	0.31	0.14	0.21	0.03	0.26	0.04	0.45	0.20	0.32	0.05	0.37	0.05
Mid-Cap Blend	5	25	444	77,539	2	797	0.24	0.10	0.11	0.04	0.12	0.03	0.30	0.14	0.14	0.07	0.15	0.05
Mid-Cap Growth	1	16	12	22,571	0	145	0.32	0.11	0.32	0.04	0.32	0.05	0.42	0.16	0.42	0.05	0.42	0.06
Mid-Cap Value	3	20	379	33,606	2	170	0.13	0.12	0.11	0.03	0.12	0.03	0.17	0.18	0.14	0.04	0.15	0.04
Small Blend	2	28	48	63,843	1	4,083	0.29	0.23	0.29	0.04	0.32	0.04	0.39	0.34	0.40	0.05	0.45	0.05
Small Growth		11		16,384		188		0.11		0.05		0.04		0.16		0.08		0.06
Small Value		17		17,691		174		0.14		0.05		0.05		0.20		0.06		0.06
US EQUITY SECTORS	**8**	**287**	**1,154**	**284,349**	**11**	**12,193**	**0.30**	**0.21**	**0.11**	**0.06**	**0.11**	**0.07**	**0.43**	**0.28**	**0.14**	**0.09**	**0.14**	**0.10**
Commodities Industrial Metals		3		176		3		0.55		0.24		0.25		0.72		0.39		0.39
Communications		7		2,177		24		0.15		0.10		0.09		0.20		0.13		0.12
Consumer Cyclical		19		22,396		1,018		0.13		0.04		0.04		0.18		0.06		0.06
Consumer Defensive		12		15,687		491		0.13		0.04		0.03		0.17		0.05		0.04
Energy Limited Partnership	1	8	15	8,934	0	116	0.48	0.23	0.48	0.13	0.48	0.13	0.63	0.34	0.63	0.39	0.63	0.39
Equity Energy	1	24	1,050	24,010	10	2,243	0.09	0.19	0.09	0.05	0.09	0.04	0.10	0.25	0.10	0.07	0.10	0.10
Equity Precious Metals		14		7,688		1,112		0.55		0.28		0.28		0.67		0.35		0.34
Financial		32		33,402		1,250		0.18		0.05		0.05		0.25		0.08		0.08
Health	1	28	8	50,211	0	2,070	0.37	0.10	0.37	0.05	0.37	0.05	0.54	0.16	0.54	0.07	0.54	0.08
Industrials		20		13,658		701		0.14		0.04		0.03		0.18		0.05		0.04
Miscellaneous Sector	1	23	8	4,474	0	30	0.30	0.36	0.30	0.25	0.30	0.32	0.45	0.44	0.45	0.31	0.45	0.39
Natural Resources		30		12,906		462		0.29		0.15		0.11		0.36		0.19		0.15
Real Estate	1	19	51	41,564	0	1,198	0.27	0.17	0.27	0.04	0.27	0.04	0.42	0.22	0.42	0.05	0.42	0.05
Technology	2	36	19	37,138	0	844	0.34	0.17	0.34	0.05	0.33	0.04	0.50	0.21	0.49	0.06	0.49	0.06
Utilities	1	12	3	9,929	0	632	0.22	0.17	0.22	0.04	0.22	0.03	0.29	0.24	0.29	0.05	0.29	0.04
INTERNATIONAL EQUITY	**16**	**452**	**682**	**453,166**	**4**	**10,848**	**0.40**	**0.62**	**0.23**	**0.43**	**0.29**	**0.54**	**0.48**	**0.74**	**0.27**	**0.54**	**0.36**	**0.70**
China Region	1	37	8	18,321	0	1,336	0.80	0.91	0.80	0.76	0.80	0.82	1.31	1.23	1.31	1.01	1.31	1.10
Diversified Emerging Mkts		68		90,331		2,989		0.73		0.48		0.56		0.84		0.59		0.70
Diversified Pacific/Asia		6		3,600		38		0.68		0.24		0.22		0.83		0.30		0.27
Europe Stock		38		57,453		1,109		0.49		0.33		0.33		0.54		0.44		0.44
Foreign Large Blend	2	46	21	139,266	0	2,084	0.66	0.49	0.69	0.32	0.65	0.36	0.76	0.49	0.82	0.39	0.74	0.44
Foreign Large Growth	1	6	17	2,772	0	22	0.51	0.39	0.51	0.40	0.51	0.41	0.67	0.47	0.67	0.50	0.67	0.49
Foreign Large Value	2	25	85	11,697	0	83	0.49	0.46	0.47	0.41	0.48	0.41	0.56	0.56	0.50	0.51	0.54	0.51
Foreign Small/Mid Blend		9		8,773		62		0.58		0.45		0.46		0.61		0.48		0.48
Foreign Small/Mid Value	1	8	12	1,435	0	8	0.69	0.55	0.69	0.50	0.69	0.50	0.48	0.67	0.48	0.57	0.48	0.58
Global Real Estate	1	15	2	11,502	0	66	0.38	0.60	0.38	0.35	0.38	0.34	0.48	0.51	0.48	0.41	0.48	0.40
India Equity		9		7,556		206		0.72		0.67		0.66		0.93		0.87		0.89
Japan Stock		27		37,667		816		0.74		0.73		0.72		0.98		0.97		0.96
Latin America Stock		14		3,382		520		0.73		0.62		0.69		0.92		0.82		0.93
Miscellaneous Region		99		34,338		1,217		0.61		0.48		0.55		0.75		0.64		0.73
Pacific/Asia ex-Japan Stk		14		7,117		112		0.64		0.61		0.64		0.74		0.80		0.82
World Stock	8	31	537	17,955	3	180	0.22	0.45	0.15	0.20	0.15	0.20	0.27	0.50	0.18	0.23	0.19	0.24

Exhibit 1-4: Measures of ETF Investor Trading Costs: 2014

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**22**	**239**	**821**	**774,265**	**12**	**34,958**	**0.27**	**0.11**	**0.14**	**0.03**	**0.18**	**0.03**	**0.40**	**0.14**	**0.19**	**0.04**	**0.25**	**0.03**
Large Blend	4	55	68	368,608	4	22,916	0.25	0.12	0.27	0.02	0.23	0.02	0.37	0.17	0.38	0.03	0.35	0.03
Large Growth	4	26	36	102,359	1	3,878	0.45	0.08	0.36	0.03	0.39	0.03	0.76	0.10	0.57	0.03	0.64	0.03
Large Value	4	49	69	107,422	1	1,581	0.26	0.09	0.17	0.03	0.21	0.03	0.40	0.12	0.24	0.04	0.32	0.03
Mid-Cap Blend	5	25	301	64,967	4	859	0.23	0.10	0.12	0.04	0.16	0.03	0.30	0.13	0.15	0.04	0.17	0.04
Mid-Cap Growth	1	16	8	15,453	0	87	0.43	0.12	0.43	0.04	0.43	0.04	0.69	0.17	0.69	0.05	0.69	0.05
Mid-Cap Value	3	18	326	30,827	3	150	0.10	0.09	0.09	0.03	0.10	0.04	0.12	0.12	0.11	0.04	0.12	0.04
Small Blend	1	24	13	55,147	0	5,110	0.23	0.14	0.23	0.04	0.23	0.04	0.30	0.20	0.30	0.05	0.30	0.05
Small Growth		11		13,821		221		0.11		0.05		0.05		0.16		0.06		0.06
Small Value		15		15,661		158		0.10		0.05		0.05		0.14		0.06		0.06
US EQUITY SECTORS	**7**	**286**	**795**	**251,880**	**9**	**10,480**	**0.29**	**0.23**	**0.13**	**0.06**	**0.16**	**0.07**	**0.40**	**0.27**	**0.12**	**0.08**	**0.19**	**0.09**
Commodities Industrial Metals		3		302		5		0.59		0.19		0.24		0.64		0.25		0.30
Communications		8		2,071		22		0.22		0.09		0.10		0.29		0.12		0.13
Consumer Cyclical		19		13,946		909		0.15		0.04		0.04		0.20		0.06		0.05
Consumer Defensive		13		11,999		386		0.21		0.04		0.03		0.25		0.05		0.04
Energy Limited Partnership	1	8	6	9,302		74	0.30	0.15	0.30	0.08		0.08	0.34	0.19	0.34	0.12		0.12
Equity Energy	1	23	722	21,758	6	2,167	0.12	0.18	0.12	0.04	0.12	0.03	0.10	0.20	0.10	0.06	0.10	0.04
Equity Precious Metals		14		10,004		1,180		0.51		0.29		0.29		0.63		0.39		0.40
Financial		34		31,400		1,086		0.19		0.05		0.04		0.25		0.06		0.06
Health	1	26	3	33,541	0	1,213	0.33	0.12	0.33	0.04	0.33	0.04	0.47	0.16	0.47	0.06	0.47	0.05
Industrials		21		16,338		707		0.15		0.04		0.03		0.20		0.05		0.04
Miscellaneous Sector	1	25	14	4,977	3	48	0.24	0.37	0.24	0.24	0.24	0.32	0.35	0.41	0.35	0.28	0.35	0.38
Natural Resources		31		18,412		476		0.32		0.11		0.06		0.35		0.14		0.09
Real Estate	1	17	38	36,378	0	1,028	0.17	0.14	0.17	0.04	0.17	0.04	0.27	0.17	0.27	0.05	0.27	0.05
Technology	2	31	12	32,212	0	603	0.41	0.18	0.43	0.04	0.42	0.04	0.63	0.23	0.65	0.06	0.64	0.06
Utilities		13		9,240		577		0.24		0.04		0.03		0.31		0.05		0.04
INTERNATIONAL EQUITY	**14**	**363**	**569**	**389,932**	**9**	**9,722**	**0.33**	**0.54**	**0.18**	**0.37**	**0.22**	**0.44**	**0.39**	**0.64**	**0.22**	**0.47**	**0.27**	**0.58**
China Region	1	33	3	14,329	0	1,000	0.57	0.57	0.57	0.50	0.57	0.54	0.79	0.72	0.79	0.70	0.79	0.75
Diversified Emerging Mkts		60		102,815		3,283		0.52		0.40		0.45		0.61		0.52		0.59
Diversified Pacific/Asia		4		2,904		30		0.39		0.19		0.20		0.49		0.24		0.26
Europe Stock		20		37,564		675		0.41		0.25		0.25		0.49		0.31		0.32
Foreign Large Blend	1	26	18	104,664	0	1,437	0.42	0.38	0.42	0.28	0.42	0.32	0.49	0.37	0.49	0.32	0.49	0.39
Foreign Large Growth	1	6	13	2,393	0	12	0.42	0.35	0.42	0.32	0.42	0.32	0.53	0.42	0.53	0.43	0.53	0.42
Foreign Large Value	2	19	38	11,151	1	68	0.61	0.41	0.44	0.38	0.55	0.39	0.64	0.42	0.41	0.42	0.56	0.42
Foreign Small/Mid Blend		7		7,034		43		0.51		0.41		0.41		0.51		0.43		0.44
Foreign Small/Mid Value	1	7	8	1,316	0	7	0.60	0.51	0.60	0.48	0.60	0.47	0.42	0.52	0.42	0.52	0.42	0.51
Global Real Estate		11		9,157		48		0.35		0.34		0.34		0.40		0.39		0.38
India Equity		9		4,109		143		0.82		0.71		0.69		0.95		0.85		0.84
Japan Stock		19		26,870		658		0.68		0.71		0.70		0.98		1.00		1.00
Latin America Stock		15		5,952		978		0.50		0.38		0.41		0.60		0.49		0.53
Miscellaneous Region		93		37,484		1,131		0.61		0.42		0.46		0.74		0.56		0.67
Pacific/Asia ex-Japan Stk		14		6,784		82		0.96		0.46		0.47		1.27		0.61		0.64
World Stock	8	20	490	15,407	7	126	0.17	0.30	0.14	0.19	0.14	0.19	0.23	0.34	0.18	0.21	0.19	0.21

Source: Morningstar, Inc. AETF means actively-managed ETF; IETF means index ETF.
EW means weighting all funds equally; AW means weighting funds by net assets; VW means weighting funds by dollar trading volume.
Note: Excludes ETNs, non-equity, leveraged, inverse, and inverse leveraged ETFs as well as premium/discount observations greater than 20% for included funds.

Exhibit 1-5: Measures of ETF Investor Trading Costs: 2013

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**11**	**228**	**254**	**602,855**	**5**	**30,466**	**0.30**	**0.11**	**0.19**	**0.03**	**0.20**	**0.03**	**0.43**	**0.15**	**0.26**	**0.04**	**0.26**	**0.04**
Large Blend	4	52	57	283,095	1	21,345	0.26	0.13	0.27	0.03	0.26	0.02	0.36	0.17	0.38	0.04	0.36	0.03
Large Growth	2	24	12	79,539	0	2,590	0.59	0.08	0.52	0.03	0.60	0.03	0.86	0.11	0.84	0.04	0.87	0.04
Large Value	2	46	22	84,819	0	1,441	0.27	0.10	0.23	0.04	0.25	0.03	0.49	0.13	0.46	0.04	0.47	0.04
Mid-Cap Blend	1	27	42	50,116	1	756	0.16	0.12	0.16	0.04	0.16	0.04	0.18	0.17	0.18	0.05	0.18	0.06
Mid-Cap Growth		15		11,764		65		0.12		0.04		0.04		0.17		0.05		0.05
Mid-Cap Value	1	15	118	24,542	2	133	0.12	0.09	0.12	0.04	0.12	0.04	0.13	0.11	0.13	0.05	0.13	0.05
Small Blend	1	23	3	45,089	0	3,853	0.25	0.14	0.25	0.05	0.25	0.05	0.33	0.19	0.33	0.06	0.33	0.06
Small Growth		11		11,220		155		0.12		0.05		0.05		0.16		0.06		0.06
Small Value		15		12,672		129		0.12		0.05		0.05		0.15		0.06		0.06
US EQUITY SECTORS	**3**	**294**	**389**	**193,811**	**4**	**8,170**	**0.21**	**0.28**	**0.17**	**0.07**	**0.17**	**0.06**	**0.25**	**0.32**	**0.11**	**0.09**	**0.13**	**0.07**
Commodities Industrial Metals		3		301		4		1.02		0.24		0.25		1.07		0.31		0.33
Communications		9		1,761		23		0.34		0.11		0.10		0.39		0.14		0.12
Consumer Cyclical		19		13,857		930		0.18		0.05		0.04		0.22		0.07		0.06
Consumer Defensive		14		9,930		372		0.26		0.05		0.03		0.31		0.06		0.04
Energy Limited Partnership		7		6,638		57		0.19		0.10		0.10		0.19		0.14		0.14
Equity Energy	1	25	348	17,187	3	1,375	0.16	0.22	0.16	0.05	0.16	0.04	0.09	0.25	0.09	0.06	0.09	0.05
Equity Precious Metals		13		9,222		901		0.60		0.23		0.14		0.73		0.31		0.20
Financial		37		23,390		1,069		0.25		0.05		0.04		0.30		0.06		0.05
Health		25		20,261		588		0.15		0.05		0.04		0.17		0.06		0.05
Industrials		21		9,798		522		0.20		0.05		0.04		0.23		0.06		0.05
Miscellaneous Sector	1	27	13	3,594	0	33	0.27	0.45	0.27	0.25	0.27	0.36	0.39	0.47	0.39	0.27	0.39	0.41
Natural Resources		33		17,259		469		0.38		0.14		0.07		0.40		0.15		0.08
Real Estate	1	16	28	30,178	0	1,003	0.20	0.14	0.20	0.05	0.20	0.05	0.28	0.18	0.28	0.06	0.28	0.07
Technology		31		21,882		392		0.23		0.05		0.05		0.27		0.06		0.07
Utilities		14		8,552		431		0.28		0.04		0.04		0.33		0.05		0.04
INTERNATIONAL EQUITY	**6**	**303**	**56**	**328,958**	**1**	**8,997**	**0.34**	**0.63**	**0.34**	**0.45**	**0.31**	**0.52**	**0.50**	**0.70**	**0.49**	**0.56**	**0.45**	**0.66**
China Region	1	28	2	15,130	0	897	0.45	0.73	0.45	0.59	0.45	0.61	0.65	0.84	0.65	0.75	0.65	0.78
Diversified Emerging Mkts		55		113,931		3,537		0.70		0.48		0.52		0.75		0.61		0.69
Diversified Pacific/Asia		3		2,308		25		0.40		0.20		0.20		0.48		0.23		0.23
Europe Stock		11		16,565		335		0.49		0.27		0.28		0.43		0.34		0.35
Foreign Large Blend	1	18	16	77,427	0	1,304	0.42	0.46	0.42	0.33	0.42	0.38	0.52	0.41	0.52	0.36	0.52	0.44
Foreign Large Growth	1	3	8	1,944	0	10	0.43	0.45	0.43	0.41	0.43	0.43	0.65	0.47	0.65	0.46	0.65	0.44
Foreign Large Value		19		7,770		50		0.52		0.45		0.46		0.44		0.47		0.46
Foreign Small/Mid Blend		7		4,883		32		0.61		0.52		0.52		0.51		0.48		0.50
Foreign Small/Mid Value		6		860		6		0.71		0.63		0.72		0.66		0.59		0.74
Global Real Estate		11		7,520		53		0.45		0.44		0.44		0.50		0.50		0.49
India Equity		9		2,195		92		0.85		0.78		0.77		1.13		1.05		1.05
Japan Stock		11		19,728		725		0.91		0.91		0.90		1.11		1.13		1.12
Latin America Stock		16		8,492		749		0.48		0.38		0.41		0.55		0.50		0.55
Miscellaneous Region		79		32,234		990		0.63		0.47		0.48		0.75		0.63		0.65
Pacific/Asia ex-Japan Stk		13		7,314		92		0.79		0.52		0.54		1.03		0.70		0.72
World Stock	3	14	30	10,656	1	100	0.25	0.45	0.27	0.22	0.25	0.23	0.39	0.47	0.42	0.23	0.37	0.24

Exhibit 1-6: Measures of ETF Investor Trading Costs: 2012

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**8**	**237**	**57**	**434,426**	**1**	**30,277**	**0.59**	**0.18**	**0.52**	**0.04**	**0.51**	**0.03**	**0.64**	**0.25**	**0.56**	**0.05**	**0.53**	**0.04**
Large Blend	4	50	37	199,782	1	20,543	0.32	0.16	0.35	0.03	0.28	0.03	0.37	0.21	0.40	0.04	0.30	0.04
Large Growth	2	32	9	66,776	0	3,060	1.41	0.16	1.46	0.03	1.39	0.03	1.31	0.22	1.31	0.04	1.31	0.04
Large Value	1	46	3	59,881	0	1,165	0.35	0.17	0.35	0.04	0.35	0.03	0.50	0.22	0.50	0.05	0.50	0.04
Mid-Cap Blend	1	28	8	33,654	0	786	0.31	0.16	0.31	0.04	0.31	0.05	0.50	0.23	0.50	0.06	0.50	0.06
Mid-Cap Growth		14		8,978		67		0.20		0.04		0.04		0.33		0.05		0.05
Mid-Cap Value		13		18,493		132		0.13		0.04		0.04		0.18		0.06		0.05
Small Blend		19		29,985		1,029		0.17		0.06		0.06		0.24		0.07		0.07
Small Growth		16		7,974		3,371		0.27		0.06		0.05		0.47		0.08		0.07
Small Value		19		8,903		124		0.25		0.06		0.06		0.35		0.08		0.08
US EQUITY SECTORS	**3**	**294**	**100**	**146,358**	**2**	**7,199**	**0.29**	**0.30**	**0.26**	**0.08**	**0.26**	**0.06**	**0.35**	**0.35**	**0.26**	**0.10**	**0.24**	**0.08**
Commodities Industrial Metals		3		347		3		0.70		0.28		0.28		1.62		0.39		0.40
Communications		9		1,669		14		0.37		0.14		0.14		0.44		0.17		0.16
Consumer Cyclical		19		8,276		777		0.20		0.06		0.06		0.24		0.07		0.07
Consumer Defensive		15		8,318		228		0.28		0.05		0.04		0.35		0.06		0.05
Energy Limited Partnership		3		3,532		34		0.21		0.10		0.10		0.20		0.11		0.12
Equity Energy	1	27	70	15,405	2	1,381	0.25	0.28	0.25	0.06	0.25	0.05	0.20	0.33	0.20	0.08	0.20	0.06
Equity Precious Metals		13		11,920		746		0.59		0.17		0.11		0.67		0.22		0.14
Financial		35		12,379		1,331		0.27		0.06		0.07		0.37		0.08		0.09
Health		25		12,513		323		0.16		0.06		0.05		0.21		0.08		0.07
Industrials		24		5,497		742		0.29		0.06		0.04		0.33		0.07		0.05
Miscellaneous Sector	1	25	7	2,929	0	20	0.37	0.43	0.37	0.27	0.37	0.32	0.49	0.37	0.49	0.27	0.49	0.35
Natural Resources		35		14,239		537		0.37		0.14		0.06		0.43		0.16		0.08
Real Estate	1	17	23	23,279	0	359	0.25	0.15	0.25	0.05	0.25	0.05	0.37	0.20	0.37	0.06	0.37	0.07
Technology		31		17,304		399		0.26		0.05		0.10		0.30		0.07		0.11
Utilities		13		8,752		305		0.30		0.05		0.05		0.36		0.07		0.06
INTERNATIONAL EQUITY	**5**	**278**	**40**	**250,891**	**0**	**8,093**	**0.40**	**0.66**	**0.45**	**0.41**	**0.42**	**0.55**	**0.52**	**0.71**	**0.57**	**0.49**	**0.53**	**0.65**
China Region		25		12,117		752		0.95		0.66		0.75		1.03		0.85		0.90
Diversified Emerging Mkts		50		101,336		1,420		0.74		0.40		0.41		0.73		0.49		0.47
Diversified Pacific/Asia		3		1,594		12		0.41		0.12		0.13		0.41		0.15		0.15
Europe Stock		10		5,746		115		0.56		0.33		0.29		0.54		0.37		0.31
Foreign Large Blend	1	18	14	56,331	0	402	0.68	0.66	0.68	0.35	0.68	0.35	0.76	0.54	0.76	0.38	0.76	0.37
Foreign Large Growth	1	4	7	1,356	0	840	0.34	0.39	0.34	0.39	0.34	0.39	0.45	0.45	0.45	0.47	0.45	0.47
Foreign Large Value		16		4,784		35		0.65		0.46		0.46		0.75		0.50		0.52
Foreign Small/Mid Blend		7		3,336		12		0.57		0.45		0.46		0.61		0.46		0.45
Foreign Small/Mid Value		5		586		2		0.63		0.51		0.51		0.75		0.59		0.60
Global Real Estate		10		4,903		48		0.47		0.45		0.48		0.52		0.49		0.55
India Equity		9		1,758		106		0.72		0.64		0.66		0.85		0.78		0.81
Japan Stock		10		6,012		56		0.68		0.56		0.56		0.86		0.74		0.74
Latin America Stock		17		11,385		542		0.50		0.29		0.39		0.61		0.40		0.49
Miscellaneous Region		69		26,881		1,308		0.63		0.47		0.56		0.71		0.60		0.67
Pacific/Asia ex-Japan Stk		12		6,191		2,410		0.68		0.57		0.71		0.83		0.73		0.85
World Stock	3	13	19	6,575	0	31	0.33	0.54	0.34	0.29	0.32	0.26	0.47	0.50	0.47	0.30	0.45	0.26

Source: Morningstar, Inc. AETF means actively-managed ETF; IETF means index ETF.
EW means weighting all funds equally; AW means weighting funds by net assets; VW means weighting funds by dollar trading volume.
Note: Excludes ETNs, non-equity, leveraged, inverse, and inverse leveraged ETFs as well as premium/discount observations greater than 20% for included funds.

Exhibit 1-7: Measures of ETF Investor Trading Costs: 2011

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**8**	**227**	**64**	**364,536**	**1**	**40,351**	**0.58**	**0.25**	**0.53**	**0.04**	**0.54**	**0.04**	**0.91**	**0.40**	**0.82**	**0.07**	**0.84**	**0.07**
Large Blend	2	51	19	166,662	0	28,288	0.63	0.23	0.70	0.04	0.73	0.03	0.92	0.36	1.00	0.06	1.04	0.07
Large Growth	3	30	34	52,494	1	4,002	0.65	0.26	0.45	0.04	0.44	0.03	1.08	0.39	0.76	0.05	0.75	0.04
Large Value	1	39	3	44,248	0	1,353	0.51	0.17	0.51	0.04	0.51	0.04	0.75	0.25	0.75	0.06	0.75	0.05
Mid-Cap Blend	1	28	5	32,903	0	786	0.45	0.25	0.45	0.05	0.45	0.05	0.66	0.43	0.66	0.08	0.66	0.07
Mid-Cap Growth	1	14	3	8,923	0	100	0.49	0.28	0.49	0.05	0.49	0.05	0.81	0.43	0.81	0.07	0.81	0.07
Mid-Cap Value		13		14,109		126		0.15		0.05		0.05		0.24		0.07		0.06
Small Blend		19		28,441		5,329		0.25		0.07		0.07		0.40		0.10		0.09
Small Growth		15		8,214		216		0.48		0.08		0.08		0.78		0.12		0.11
Small Value		18		8,542		152		0.37		0.08		0.09		0.57		0.12		0.12
US EQUITY SECTORS	**1**	**297**	**20**	**135,323**	**0**	**10,757**	**0.30**	**0.33**	**0.30**	**0.12**	**0.30**	**0.09**	**0.59**	**0.47**	**0.59**	**0.17**	**0.59**	**0.15**
Commodities Industrial Metals		2		540		6		0.46		0.44		0.44		0.63		0.61		0.61
Communications		11		1,771		21		0.37		0.19		0.16		0.56		0.28		0.24
Consumer Cyclical		20		5,994		1,080		0.31		0.12		0.14		0.52		0.26		0.38
Consumer Defensive		15		6,341		296		0.34		0.07		0.05		0.45		0.10		0.07
Energy Limited Partnership		1		1,187		13		0.10		0.10		0.10		0.12		0.12		0.12
Equity Energy		26		20,568		2,812		0.27		0.07		0.04		0.35		0.10		0.06
Equity Precious Metals		9		11,160		846		0.47		0.21		0.15		0.59		0.28		0.20
Financial		35		11,342		1,572		0.37		0.08		0.06		0.54		0.12		0.09
Health		27		11,121		505		0.22		0.09		0.06		0.32		0.14		0.09
Industrials		25		5,840		802		0.33		0.07		0.04		0.48		0.10		0.06
Miscellaneous Sector		24		4,600		48		0.42		0.36		0.41		0.51		0.43		0.51
Natural Resources		35		14,921		1,006		0.43		0.20		0.10		0.57		0.26		0.12
Real Estate	1	17	20	16,580	0	714	0.30	0.26	0.30	0.07	0.30	0.07	0.59	0.42	0.59	0.10	0.59	0.09
Technology		36		16,200		753		0.27		0.10		0.29		0.45		0.16		0.53
Utilities		14		7,159		281		0.33		0.06		0.05		0.44		0.08		0.06
INTERNATIONAL EQUITY	**3**	**231**	**31**	**244,592**	**1**	**10,827**	**0.58**	**0.84**	**0.62**	**0.63**	**0.71**	**0.75**	**0.80**	**1.01**	**0.84**	**0.82**	**0.96**	**0.98**
China Region		23		13,779		1,049		1.34		0.97		1.01		1.51		1.37		1.45
Diversified Emerging Mkts		34		89,996		3,989		0.77		0.56		0.67		0.88		0.76		0.93
Diversified Pacific/Asia		2		1,583		10		0.26		0.19		0.19		0.34		0.23		0.23
Europe Stock		10		5,235		1,398		0.61		0.47		0.95		0.78		0.58		1.12
Foreign Large Blend	1	14	12	53,642	0	1,378	1.04	0.71	1.04	0.56	1.04	0.62	1.38	0.82	1.38	0.70	1.38	0.79
Foreign Large Growth	1	4	8	1,494	0	9	0.38	0.71	0.38	0.66	0.38	0.64	0.54	0.82	0.54	0.84	0.54	0.81
Foreign Large Value		15		3,779		33		0.77		0.68		0.70		0.87		0.84		0.84
Foreign Small/Mid Blend		7		3,459		26		0.65		0.67		0.67		0.80		0.82		0.84
Foreign Small/Mid Value		4		679		3		0.75		0.72		0.77		0.89		0.91		0.96
Global Real Estate		10		3,220		26		0.64		0.70		0.68		0.76		0.83		0.80
India Equity		7		2,013		83		0.88		0.82		0.83		1.19		1.14		1.15
Japan Stock		11		7,654		332		0.87		0.88		0.88		1.16		1.22		1.22
Latin America Stock		15		15,029		1,167		1.03		0.67		0.72		1.02		0.66		0.68
Miscellaneous Region		55		31,460		1,183		0.85		0.71		0.74		1.12		0.98		1.03
Pacific/Asia ex-Japan Stk		9		6,750		92		0.89		0.85		0.85		1.23		1.21		1.22
World Stock	1	11	11	4,820	0	49	0.33	0.54	0.33	0.41	0.33	0.38	0.47	0.64	0.47	0.45	0.47	0.43

Exhibit 1-8: Measures of ETF Investor Trading Costs: 2010

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**6**	**188**	**40**	**293,388**	**0**	**35,642**	**0.82**	**0.19**	**0.59**	**0.05**	**0.59**	**0.04**	**1.34**	**0.30**	**0.94**	**0.06**	**0.97**	**0.06**
Large Blend	1	46	3	134,992	0	24,521	0.85	0.25	0.85	0.04	0.85	0.03	1.41	0.39	1.41	0.05	1.41	0.05
Large Growth	3	22	31	42,488	0	4,271	0.85	0.13	0.53	0.04	0.51	0.04	1.33	0.20	0.83	0.06	0.79	0.07
Large Value	1	30	2	31,778	0	1,252	0.80	0.11	0.80	0.05	0.80	0.04	1.50	0.16	1.50	0.06	1.50	0.05
Mid-Cap Blend		22		26,794		680		0.24		0.05		0.05		0.40		0.08		0.10
Mid-Cap Growth	1	13	3	6,898	0	77	0.71	0.17	0.71	0.05	0.71	0.05	1.16	0.30	1.16	0.07	1.16	0.08
Mid-Cap Value		15		10,850		117		0.17		0.05		0.06		0.25		0.07		0.07
Small Blend		18		24,921		4,384		0.20		0.07		0.07		0.31		0.09		0.08
Small Growth		10		6,510		176		0.21		0.07		0.07		0.31		0.08		0.08
Small Value		12		8,157		164		0.16		0.07		0.08		0.23		0.09		0.09
US EQUITY SECTORS	**3**	**242**	**19**	**96,096**	**0**	**8,173**	**1.03**	**0.35**	**0.67**	**0.12**	**0.68**	**0.08**	**1.52**	**0.50**	**1.00**	**0.15**	**1.03**	**0.11**
Commodities Industrial Metals		1		431		8		0.47		0.47		0.47		0.61		0.61		0.61
Communications		8		1,379		18		0.44		0.17		0.17		0.59		0.21		0.21
Consumer Cyclical		17		4,618		915		0.31		0.10		0.08		0.46		0.13		0.10
Consumer Defensive		12		4,229		196		0.33		0.07		0.06		0.51		0.10		0.08
Energy Limited Partnership		1		293		10		0.10		0.10		0.10		0.09		0.09		0.09
Equity Energy		21		11,680		1,304		0.29		0.09		0.07		0.41		0.12		0.09
Equity Precious Metals		8		8,262		645		0.55		0.18		0.16		0.61		0.24		0.21
Financial	1	31	3	10,377	0	1,819	1.62	0.45	1.62	0.08	1.62	0.07	2.35	0.70	2.35	0.11	2.35	0.09
Health		22		7,904		337		0.22		0.08		0.07		0.32		0.11		0.10
Industrials		21		5,086		575		0.47		0.10		0.06		0.71		0.13		0.09
Miscellaneous Sector		24		4,684		43		0.33		0.29		0.32		0.40		0.34		0.39
Natural Resources		29		9,936		839		0.41		0.19		0.11		0.51		0.24		0.16
Real Estate	1	13	13	12,152	0	915	0.38	0.29	0.38	0.08	0.38	0.09	0.60	0.52	0.60	0.12	0.60	0.14
Technology	1	23	3	10,056	0	330	1.08	0.24	1.08	0.07	1.08	0.07	1.61	0.34	1.61	0.09	1.61	0.09
Utilities		11		5,010		219		0.31		0.07		0.06		0.44		0.11		0.09
INTERNATIONAL EQUITY	**2**	**197**	**11**	**206,613**	**0**	**9,127**	**0.24**	**0.80**	**0.24**	**0.54**	**0.24**	**0.60**	**0.33**	**0.84**	**0.33**	**0.67**	**0.32**	**0.76**
China Region		20		15,039		1,297		1.31		0.75		0.79		0.96		0.98		1.03
Diversified Emerging Mkts		23		75,141		3,629		0.68		0.43		0.46		0.70		0.51		0.58
Diversified Pacific/Asia		2		1,460		9		0.19		0.21		0.21		0.24		0.25		0.25
Europe Stock		11		5,053		89		0.55		0.41		0.38		0.73		0.54		0.50
Foreign Large Blend		13		46,483		1,256		0.65		0.53		0.58		0.83		0.65		0.73
Foreign Large Growth	1	3	6	1,377	0	9	0.34	0.59	0.34	0.58	0.34	0.58	0.47	0.69	0.47	0.75	0.47	0.74
Foreign Large Value		13		2,921		21		0.56		0.58		0.60		0.71		0.75		0.74
Foreign Small/Mid Blend		7		2,258		20		0.62		0.67		0.67		0.68		0.72		0.71
Foreign Small/Mid Value		4		646		3		0.69		0.63		0.66		0.80		0.82		0.82
Global Real Estate		10		1,980		15		0.65		0.70		0.68		0.71		0.81		0.73
India Equity		6		1,673		59		0.83		0.74		0.77		0.79		0.90		0.93
Japan Stock		8		5,205		227		0.77		0.73		0.73		1.07		0.97		0.96
Latin America Stock		10		14,150		1,424		1.33		0.70		0.76		0.60		0.83		0.92
Miscellaneous Region		48		23,490		940		0.72		0.61		0.61		0.87		0.81		0.81
Pacific/Asia ex-Japan Stk		8		6,620		99		0.94		0.68		0.68		1.24		0.91		0.90
World Stock	1	11	5	3,117	0	30	0.15	1.14	0.15	0.35	0.15	0.34	0.19	1.16	0.19	0.37	0.19	0.38

Source: Morningstar, Inc. AETF means actively-managed ETF; IETF means index ETF.
EW means weighting all funds equally; AW means weighting funds by net assets; VW means weighting funds by dollar trading volume.
Note: Excludes ETNs, non-equity, leveraged, inverse, and inverse leveraged ETFs as well as premium/discount observations greater than 20% for included funds.

Exhibit 1-9: Measures of ETF Investor Trading Costs: 2009

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**6**	**173**	**20**	**232,818**	**1**	**34,114**	**0.67**	**0.40**	**0.68**	**0.09**	**0.71**	**0.08**	**1.01**	**0.62**	**1.03**	**0.15**	**1.10**	**0.12**
Large Blend	1	42	2	114,656	0	23,503	0.59	0.32	0.59	0.08	0.59	0.07	0.90	0.48	0.90	0.12	0.90	0.11
Large Growth	3	21	9	34,388	0	4,606	0.67	0.32	0.68	0.10	0.68	0.08	0.97	0.49	1.00	0.15	1.00	0.14
Large Value	1	29	3	24,456	0	1,704	0.76	0.24	0.76	0.10	0.76	0.07	1.22	0.48	1.22	0.24	1.22	0.11
Mid-Cap Blend		17		18,471		766		0.35		0.10		0.09		0.55		0.14		0.15
Mid-Cap Growth	1	16	5	4,919	0	82	0.67	0.96	0.67	0.11	0.67	0.11	1.02	1.31	1.02	0.15	1.02	0.15
Mid-Cap Value		14		7,979		120		0.34		0.11		0.11		0.60		0.15		0.16
Small Blend		15		16,862		3,059		0.37		0.15		0.14		0.59		0.20		0.19
Small Growth		9		5,096		146		0.81		0.14		0.14		1.12		0.18		0.19
Small Value		10		5,991		129		0.31		0.18		0.19		0.49		0.24		0.25
US EQUITY SECTORS	**3**	**204**	**10**	**66,859**	**0**	**8,017**	**1.13**	**0.48**	**1.28**	**0.21**	**1.31**	**0.18**	**1.78**	**0.69**	**2.07**	**0.31**	**2.14**	**0.26**
Commodities Industrial Metals		1		285		7		0.66		0.66		0.66		0.81		0.81		0.81
Communications		7		950		16		0.49		0.25		0.22		0.65		0.33		0.30
Consumer Cyclical		15		2,842		682		0.50		0.22		0.16		0.79		0.30		0.22
Consumer Defensive		10		3,219		147		0.35		0.15		0.14		0.57		0.34		0.20
Energy Limited Partnership																		
Equity Energy		18		8,656		1,390		0.40		0.14		0.10		0.56		0.18		0.13
Equity Precious Metals		3		4,919		461		0.59		0.24		0.25		0.81		0.37		0.38
Financial	1	24	3	9,381	0	2,396	0.72	0.54	0.72	0.21	0.72	0.19	0.96	0.81	0.96	0.33	0.96	0.30
Health		20		6,696		266		0.28		0.14		0.13		0.40		0.20		0.19
Industrials		17		2,856		337		0.48		0.20		0.17		0.74		0.27		0.23
Miscellaneous Sector		24		4,289		41		0.55		0.46		0.53		0.69		0.59		0.68
Natural Resources		23		6,336		559		0.56		0.27		0.19		0.70		0.37		0.25
Real Estate	1	11	4	6,903	0	1,291	1.94	0.70	1.94	0.22	1.94	0.23	3.36	1.20	3.36	0.34	3.36	0.35
Technology	1	22	3	6,299	0	206	0.72	0.42	0.72	0.16	0.72	0.16	1.03	0.63	1.03	0.23	1.03	0.22
Utilities		9		3,229		218		0.42		0.15		0.13		0.62		0.24		0.19
INTERNATIONAL EQUITY	**0**	**175**	**0**	**139,639**	**0**	**7,155**		**1.06**		**0.74**		**0.77**		**1.29**		**0.96**		**1.03**
China Region		15		13,661		1,162		0.88		1.20		1.25		1.05		1.62		1.67
Diversified Emerging Mkts		17		41,629		2,631		0.93		0.59		0.61		0.96		0.74		0.78
Diversified Pacific/Asia		2		1,286		12		0.25		0.29		0.29		0.37		0.39		0.39
Europe Stock		17		4,452		49		1.57		0.53		0.56		1.99		0.68		0.73
Foreign Large Blend		12		38,012		1,141		1.08		0.69		0.74		1.36		0.88		0.96
Foreign Large Growth		3		1,164		9		0.82		0.77		0.78		1.08		0.99		1.00
Foreign Large Value		13		2,258		19		0.84		0.81		0.82		1.09		1.03		1.03
Foreign Small/Mid Blend		6		976		13		0.82		0.91		0.87		0.99		1.00		0.92
Foreign Small/Mid Value		4		511		3		1.05		0.92		0.94		1.24		1.11		1.12
Global Real Estate		11		1,153		9		1.23		1.04		1.05		1.59		1.22		1.25
India Equity		3		588		18		0.88		1.08		1.12		1.09		1.36		1.40
Japan Stock		9		5,439		271		1.26		1.15		1.15		1.64		1.54		1.54
Latin America Stock		5		10,277		1,121		0.99		0.50		0.52		0.96		0.75		0.81
Miscellaneous Region		37		12,306		604		0.95		0.89		0.91		1.14		1.14		1.18
Pacific/Asia ex-Japan Stk		10		4,162		66		1.72		1.06		1.06		2.14		1.34		1.34
World Stock		11		1,766		27		0.86		0.46		0.49		1.05		0.54		0.56

Exhibit 1-10: Measures of ETF Investor Trading Costs: 2008

Category	No of Funds		Average Market Cap ($MM)		Average Volume ($MM)		Avg Abs Premium/Discount (%)						Volatility of Premium/Discount (%)					
							EW		AW		VW		EW		AW		VW	
	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF	AETF	IETF
US EQUITY DIVERSIFIED	**3**	**168**	**11**	**248,798**	**0**	**60,751**	**1.35**	**0.63**	**1.40**	**0.19**	**1.37**	**0.23**	**1.92**	**1.01**	**1.91**	**0.33**	**1.94**	**0.37**
Large Blend	1	35	2	121,228	0	39,529	1.22	0.66	1.22	0.21	1.22	0.23	2.01	1.04	2.01	0.33	2.01	0.35
Large Growth	1	19	3	39,760	0	7,858	1.28	0.47	1.28	0.17	1.28	0.13	1.83	0.80	1.83	0.30	1.83	0.26
Large Value		28		26,315		3,719		0.49		0.19		0.41		0.85		0.33		0.68
Mid-Cap Blend		19		16,971		1,365		0.79		0.22		0.24		1.12		0.45		0.58
Mid-Cap Growth	1	17	6	6,346	0	48	1.55	0.78	1.55	0.18	1.55	0.20	1.93	1.31	1.93	0.37	1.93	0.34
Mid-Cap Value		14		10,630		603		0.70		0.18		1.06		1.10		0.32		1.64
Small Blend		15		16,205		6,674		0.64		0.17		0.19		1.00		0.26		0.29
Small Growth		9		5,198		740		0.62		0.19		0.16		1.00		0.31		0.28
Small Value		12		6,143		215		0.63		0.21		0.21		1.00		0.33		0.32
US EQUITY SECTORS	**1**	**214**	**3**	**70,350**	**0**	**15,814**	**5.26**	**0.85**	**5.26**	**0.36**	**5.26**	**0.37**	**5.62**	**1.26**	**5.62**	**0.57**	**5.62**	**0.63**
Commodities Industrial Metals		1		58		2		0.56		0.56		0.56		0.82		0.82		0.82
Communications		7		1,115		19		0.72		0.41		0.35		1.08		0.64		0.56
Consumer Cyclical		15		2,503		542		0.80		0.28		0.27		1.23		0.48		0.46
Consumer Defensive		10		3,666		138		0.56		0.26		0.25		0.93		0.51		0.52
Energy Limited Partnership																		
Equity Energy		17		9,112		7,371		0.67		0.26		0.41		1.07		0.48		0.63
Equity Precious Metals		2		1,794		168		0.99		0.25		0.25		1.39		0.44		0.44
Financial		21		12,328		4,450		0.84		0.38		0.38		1.38		0.76		0.75
Health		40		7,545		290		0.92		0.25		0.24		1.36		0.47		0.49
Industrials		16		3,356		434		0.81		0.26		0.22		1.26		0.45		0.40
Miscellaneous Sector		23		5,487		81		0.81		0.52		0.72		1.09		0.72		0.95
Natural Resources		19		6,789		787		1.38		0.78		0.32		1.56		0.76		0.50
Real Estate	1	11	3	7,417	0	1,060	5.26	0.96	5.26	0.30	5.26	0.36	5.62	1.62	5.62	0.53	5.62	0.62
Technology		23		5,757		213		0.71		0.25		0.24		1.17		0.41		0.39
Utilities		9		3,425		260		0.64		0.25		0.21		0.97		0.40		0.33
INTERNATIONAL EQUITY	**0**	**154**	**0**	**135,999**	**0**	**13,543**		**1.36**		**1.16**		**1.37**		**1.90**		**1.76**		**2.05**
China Region		8		10,999		1,422		1.90		2.08		2.31		2.58		2.86		3.17
Diversified Emerging Mkts		14		29,704		2,808		1.20		1.06		1.17		1.59		1.61		1.83
Diversified Pacific/Asia		2		1,558		14		0.24		0.29		0.29		0.38		0.45		0.45
Europe Stock		17		6,677		1,026		1.46		0.75		0.98		2.16		1.16		1.55
Foreign Large Blend		10		43,781		1,163		1.19		1.09		1.11		1.67		1.69		1.73
Foreign Large Growth		3		1,256		13		1.25		1.09		1.10		1.77		1.64		1.64
Foreign Large Value		13		2,187		26		1.15		1.10		1.11		1.64		1.65		1.67
Foreign Small/Mid Blend		5		450		8		1.19		1.27		1.31		1.76		1.82		1.86
Foreign Small/Mid Value		4		604		6		1.17		1.15		1.15		1.65		1.64		1.64
Global Real Estate		11		1,035		14		1.53		1.21		1.25		2.06		1.73		1.76
India Equity		2		247		11		1.53		1.74		1.76		1.97		2.30		2.32
Japan Stock		9		7,816		4,843		1.60		1.63		1.54		2.24		2.39		2.25
Latin America Stock		4		9,599		1,222		1.38		0.58		0.65		2.01		1.11		1.28
Miscellaneous Region		30		15,103		886		1.27		1.23		1.31		1.86		1.87		1.98
Pacific/Asia ex-Japan Stk		10		3,539		50		1.76		1.73		1.72		2.42		2.45		2.40
World Stock		12		1,443		31		1.25		0.61		0.65		1.62		0.87		0.88

Source: Morningstar, Inc. AETF means actively-managed ETF; IETF means index ETF.
EW means weighting all funds equally; AW means weighting funds by net assets; VW means weighting funds by dollar trading volume.
Note: Excludes ETNs, non-equity, leveraged, inverse, and inverse leveraged ETFs as well as premium/discount observations greater than 20% for included funds.

Exhibit 2-1: Comparison of Active ETF (AETF) vs Index ETF (IETF) Trading Costs. Asset-Weighted (AW) within overlapping fund categories.

Category	Difference (AETF-IETF) in Avg Absolute Premium/Discount (%) - AW										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	AVG
US EQUITY DIVERSIFIED	**1.21**	**0.59**	**0.55**	**0.49**	**0.48**	**0.16**	**0.11**	**0.13**	**0.12**	**0.12**	**0.40**
Large Blend	1.02	0.51	0.81	0.66	0.32	0.24	0.24	0.26	0.14	0.11	0.43
Large Growth	1.11	0.58	0.49	0.41	1.42	0.49	0.33	0.21	0.18	0.13	0.53
Large Value		0.66	0.75	0.47	0.31	0.20	0.13	0.18	0.16	0.14	0.33
Mid-Cap Blend				0.40	0.27	0.12	0.08	0.08	0.10	0.12	0.17
Mid-Cap Growth	1.37	0.56	0.65	0.44			0.40	0.28	0.06		0.54
Mid-Cap Value						0.09	0.06	0.08	0.08	0.09	0.08
Small Blend						0.20	0.19	0.25	0.21		0.21
Small Growth									0.35	0.29	0.32
Small Value											
US EQUITY SECTORS	**4.96**	**1.07**	**0.59**	**0.23**	**0.19**	**0.10**	**0.08**	**0.06**	**0.09**	**0.07**	**0.74**
Commodities Industrial Metals											
Communications											
Consumer Cyclical											
Consumer Defensive											
Energy Limited Partnership							0.22	0.35	0.53	-0.02	0.27
Equity Energy					0.19	0.11	0.08	0.04	0.04		0.09
Equity Precious Metals											
Financial		0.50	1.54							0.17	0.74
Health							0.29	0.32	0.51	0.17	0.32
Industrials											
Miscellaneous Sector					0.10	0.02	0.00	0.05	0.09	0.03	0.05
Natural Resources											
Real Estate	4.96	1.72	0.30	0.23	0.20	0.15	0.14	0.23	0.22	0.16	0.83
Technology		0.56	1.01				0.38	0.29	0.33	0.13	0.45
Utilities								0.18	0.20	0.21	0.20
INTERNATIONAL EQUITY			**-0.18**	**0.07**	**0.11**	**-0.02**	**-0.12**	**-0.13**	**0.25**	**0.26**	**0.03**
China Region						-0.15	0.07	0.04	0.31		0.07
Diversified Emerging Mkts									0.10	0.16	0.13
Diversified Pacific/Asia									0.35	0.37	0.36
Europe Stock									0.31	0.30	0.30
Foreign Large Blend				0.48	0.33	0.09	0.14	0.36	0.53	0.22	0.31
Foreign Large Growth			-0.24	-0.27	-0.06	0.02	0.10	0.10	0.06	0.01	-0.04
Foreign Large Value							0.06	0.05	0.12		0.08
Foreign Small/Mid Blend											
Foreign Small/Mid Value							0.13	0.19	0.11		0.14
Global Real Estate								0.03	-0.04	0.68	0.22
India Equity											
Japan Stock											
Latin America Stock											
Miscellaneous Region									0.17	0.96	0.56
Pacific/Asia ex-Japan Stk											
World Stock			-0.20	-0.08	0.05	0.05	-0.06	-0.05	0.22	0.47	0.05

Category	Difference (AETF-IETF) in Volatility of Premium/Discount (%) - AW										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	AVG
US EQUITY DIVERSIFIED	**1.59**	**0.89**	**0.89**	**0.76**	**0.52**	**0.21**	**0.15**	**0.18**	**0.13**	**0.14**	**0.55**
Large Blend	1.69	0.78	1.36	0.94	0.36	0.34	0.35	0.51	0.14	0.12	0.66
Large Growth	1.52	0.85	0.77	0.71	1.27	0.80	0.53	0.28	0.20	0.16	0.71
Large Value		0.98	1.44	0.69	0.45	0.41	0.20	0.27	0.20	0.19	0.54
Mid-Cap Blend				0.58	0.45	0.12	0.10	0.07	0.10	0.15	0.22
Mid-Cap Growth	1.55	0.87	1.09	0.75			0.64	0.37	0.07		0.76
Mid-Cap Value						0.08	0.07	0.10	0.07	0.09	0.08
Small Blend						0.27	0.25	0.35	0.28		0.29
Small Growth									0.62	0.44	0.53
Small Value											
US EQUITY SECTORS	**5.09**	**1.77**	**0.89**	**0.49**	**0.18**	**0.04**	**0.06**	**0.05**	**0.09**	**0.06**	**0.87**
Commodities Industrial Metals											
Communications											
Consumer Cyclical											
Consumer Defensive											
Energy Limited Partnership							0.22	0.24	0.65	-0.07	0.26
Equity Energy					0.12	0.03	0.04	0.03	0.01		0.05
Equity Precious Metals											
Financial		0.63	2.24							0.07	0.98
Health							0.42	0.47	0.78	0.22	0.47
Industrials											
Miscellaneous Sector					0.21	0.12	0.06	0.15	0.28	0.13	0.16
Natural Resources											
Real Estate	5.09	3.02	0.48	0.49	0.31	0.22	0.22	0.38	0.31	0.23	1.07
Technology		0.81	1.51				0.60	0.43	0.53	0.14	0.67
Utilities								0.24	0.30	0.34	0.29
INTERNATIONAL EQUITY			**-0.15**	**0.16**	**0.19**	**0.08**	**-0.14**	**-0.17**	**0.16**	**0.22**	**0.04**
China Region						-0.10	0.09	0.30	0.43		0.18
Diversified Emerging Mkts									-0.20	-0.06	-0.13
Diversified Pacific/Asia									0.26	0.24	0.25
Europe Stock									0.11	0.09	0.10
Foreign Large Blend				0.68	0.38	0.16	0.17	0.44	0.36	0.27	0.35
Foreign Large Growth			-0.28	-0.30	-0.02	0.18	0.10	0.18	0.21	-0.05	0.00
Foreign Large Value							-0.01	-0.01	0.09		0.02
Foreign Small/Mid Blend											
Foreign Small/Mid Value							-0.10	-0.09	0.02		-0.06
Global Real Estate								0.07	0.01	0.60	0.23
India Equity											
Japan Stock											
Latin America Stock											
Miscellaneous Region									0.06	1.04	0.55
Pacific/Asia ex-Japan Stk											
World Stock			-0.18	0.02	0.17	0.20	-0.03	-0.05	0.34	0.39	0.11

Exhibit 2-2: Comparison of Active ETF (AETF) vs Index ETF (IETF) Trading Costs. Volume-Weighted (VW) within overlapping fund categories.

Category	Difference (AETF-IETF) in Avg Absolute Premium/Discount (%) - VW										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	AVG
US EQUITY DIVERSIFIED	**1.16**	**0.64**	**0.56**	**0.51**	**0.48**	**0.17**	**0.16**	**0.14**	**0.12**	**0.12**	**0.41**
Large Blend	1.00	0.52	0.82	0.70	0.25	0.24	0.21	0.23	0.14	0.11	0.42
Large Growth	1.15	0.60	0.47	0.41	1.36	0.57	0.37	0.11	0.15	0.14	0.53
Large Value		0.69	0.76	0.47	0.31	0.21	0.19	0.22	0.16	0.13	0.35
Mid-Cap Blend				0.40	0.27	0.11	0.13	0.09	0.09	0.12	0.17
Mid-Cap Growth	1.35	0.56	0.65	0.44			0.39	0.27	0.05		0.53
Mid-Cap Value						0.08	0.06	0.09	0.09	0.09	0.08
Small Blend						0.21	0.19	0.28	0.21		0.22
Small Growth									0.32	0.31	0.31
Small Value											
US EQUITY SECTORS	**4.90**	**1.11**	**0.61**	**0.24**	**0.20**	**0.13**	**0.12**	**0.06**	**0.16**	**0.11**	**0.76**
Commodities Industrial Metals											
Communications											
Consumer Cyclical											
Consumer Defensive											
Energy Limited Partnership								0.35	0.53	0.02	0.30
Equity Energy					0.20	0.12	0.09	0.05	0.05		0.10
Equity Precious Metals											
Financial		0.52	1.56							0.17	0.75
Health							0.29	0.32	0.50	0.17	0.32
Industrials											
Miscellaneous Sector					0.05	-0.09	-0.08	-0.02	0.03	-0.10	-0.03
Natural Resources											
Real Estate	4.90	1.71	0.30	0.24	0.20	0.15	0.13	0.23	0.22	0.15	0.82
Technology		0.56	1.02				0.38	0.29	0.32	0.12	0.45
Utilities								0.19	0.20	0.21	0.20
INTERNATIONAL EQUITY			**-0.16**	**0.10**	**0.04**	**-0.15**	**-0.18**	**-0.23**	**0.15**	**0.14**	**-0.04**
China Region						-0.17	0.03	-0.02	0.25		0.02
Diversified Emerging Mkts									0.04	0.15	0.09
Diversified Pacific/Asia									0.37	0.38	0.37
Europe Stock									0.30	0.29	0.30
Foreign Large Blend				0.42	0.33	0.04	0.10	0.29	0.48	0.22	0.27
Foreign Large Growth			-0.24	-0.26	-0.06	0.00	0.10	0.09	0.07	-0.01	-0.04
Foreign Large Value							0.16	0.06	0.11		0.11
Foreign Small/Mid Blend											
Foreign Small/Mid Value							0.13	0.19	0.11		0.14
Global Real Estate								0.03	-0.05	0.68	0.22
India Equity											
Japan Stock											
Latin America Stock											
Miscellaneous Region									0.13	0.93	0.53
Pacific/Asia ex-Japan Stk											
World Stock			-0.19	-0.06	0.05	0.01	-0.04	-0.05	0.21	0.35	0.04

Category	Difference (AETF-IETF) in Volatility of Premium/Discount (%) - VW										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	AVG
US EQUITY DIVERSIFIED	**1.60**	**0.98**	**0.91**	**0.77**	**0.49**	**0.22**	**0.21**	**0.19**	**0.13**	**0.13**	**0.57**
Large Blend	1.67	0.79	1.36	0.97	0.26	0.32	0.32	0.39	0.15	0.11	0.63
Large Growth	1.57	0.86	0.73	0.71	1.27	0.83	0.60	0.14	0.16	0.17	0.70
Large Value		1.11	1.44	0.70	0.45	0.43	0.29	0.32	0.21	0.18	0.57
Mid-Cap Blend				0.59	0.44	0.12	0.12	0.10	0.09	0.15	0.23
Mid-Cap Growth	1.59	0.88	1.08	0.75			0.63	0.36	0.06		0.76
Mid-Cap Value						0.07	0.08	0.11	0.08	0.10	0.09
Small Blend						0.27	0.25	0.39	0.27		0.29
Small Growth									0.57	0.49	0.53
Small Value											
US EQUITY SECTORS	**5.00**	**1.83**	**0.93**	**0.49**	**0.17**	**0.07**	**0.14**	**0.05**	**0.17**	**0.10**	**0.89**
Commodities Industrial Metals											
Communications											
Consumer Cyclical											
Consumer Defensive											
Energy Limited Partnership								0.24	0.65	-0.03	0.29
Equity Energy					0.14	0.04	0.06	0.01	0.02		0.05
Equity Precious Metals											
Financial		0.65	2.26							0.07	1.00
Health							0.42	0.46	0.77	0.23	0.47
Industrials											
Miscellaneous Sector					0.14	-0.02	-0.04	0.06	0.20	-0.06	0.05
Natural Resources											
Real Estate	5.00	3.01	0.46	0.49	0.30	0.22	0.22	0.38	0.28	0.23	1.06
Technology		0.81	1.52				0.58	0.44	0.53	0.14	0.67
Utilities								0.25	0.30	0.34	0.30
INTERNATIONAL EQUITY			**-0.14**	**0.18**	**0.10**	**-0.11**	**-0.25**	**-0.31**	**-0.05**	**0.04**	**-0.07**
China Region						-0.12	0.04	0.21	0.34		0.12
Diversified Emerging Mkts									-0.30	-0.10	-0.20
Diversified Pacific/Asia									0.30	0.25	0.27
Europe Stock									0.11	0.08	0.09
Foreign Large Blend				0.59	0.39	0.08	0.10	0.30	0.17	0.26	0.27
Foreign Large Growth			-0.26	-0.27	-0.02	0.21	0.11	0.18	0.22	-0.04	0.02
Foreign Large Value							0.14	0.03	0.08		0.08
Foreign Small/Mid Blend											
Foreign Small/Mid Value							-0.09	-0.10	0.01		-0.06
Global Real Estate								0.08	0.00	0.59	0.22
India Equity											
Japan Stock											
Latin America Stock											
Miscellaneous Region									0.01	1.00	0.50
Pacific/Asia ex-Japan Stk											
World Stock			-0.18	0.04	0.19	0.13	-0.01	-0.05	0.33	0.25	0.09

Source: Morningstar, Inc. AETF means actively-managed ETF; IETF means index ETF.
AW means weighting funds by net assets; VW means weighting funds by dollar trading volume.
Note: Excludes ETNs, non-equity, leveraged, inverse, and inverse leveraged ETFs as well as premium/discount observations greater than 20% for included funds.