

## **Internet Appendices for “What do consumers’ fund flows maximize? Evidence from their brokers’ incentives”**

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This appendix is in three sections. The first section provides the historical background of the N-SAR form and its predecessor, the N-1R form. The second section details how data are matched between the N-SAR form and Morningstar, and the last section gauges the accuracy of the matched sample by comparing matched funds across the two databases.

### *A. Regulatory History of SEC Forms N-1R and N-SAR*

The relation between broker compensation and incentives has long been of concern to the Securities and Exchange Commission (SEC). In January 1965, as a means to monitor those incentives and address other disclosure issues, the SEC introduced N-1R, a form that investment companies were required to submit annually. The N-1R consisted of two parts, which we summarize in Tables IA.I and IA.II.<sup>1</sup> Part I, which was publicly available to all investors, consisted of 39 questions regarding the diversification of assets, the services rendered by the investment advisor, the composition of the investment companies’ board, and the use of leverage and short-selling in the portfolio, among other things. Part II, which was for SEC use only, consisted of 29 additional questions that expanded on the disclosures required in Part I. The N-1R, a precursor to the N-SAR, also required firms to disclose information about the sales loads and commissions paid to underwriters and brokers. Specifically, questions 1.36, 1.37, and 2.27 relate to the compensation paid to underwriters and their sales force to sell the fund. The full text of these questions is as follows:

#### *Item 1.36 - Compensation of Principal Underwriters*

*(a) Furnish the information required by the following table with respect to all commissions and other compensation and profit received by each principal underwriter directly or indirectly from the registrant during the fiscal year: (1) Name of principal underwriter. (2) Net underwriting discounts and commissions deducted from offering price at time of sale. (3) Compensation or profit on redemptions and repurchases. (4) Gross brokerage commissions. (5) Other compensation.*

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<sup>1</sup> For the full text of all the questions in parts I and II of the N-1R form, see 30 Federal Register 2135, February 17, 1965.

*(b) State the commissions or other compensation or profits received during the registrant's fiscal year by the principal underwriter for the registrant, or by any other principal underwriter which was an affiliated person of such principal underwriter, from any associated registered investment company as defined in instruction 4 to Item 1.11(a) above. Also name each such principal underwriter and each such registered investment company. The information shall be set forth in tabular form, similar to that required in paragraph (a) of this item, for each such principal underwriter and for each such registered Investment Company.*

*Item 1.37 - Other Payments by Registrant to Underwriters or Dealers*

*If during the fiscal year any payments were made by the registrant to an underwriter or dealer in the registrant's shares other than (a) payments made through deduction from the offering price at the time of sale of securities issued by the registrant, (b) payments representing the purchase price of portfolio securities acquired by the registrant, (c) commissions on any purchase or sale of portfolio securities by the registrant, or (d) payments for Investment advisory services pursuant to an investment advisory contract, furnish the following information: (1) The name and address of the underwriter or dealer. (2) A description of the circumstances surrounding the payments. (3) The amount paid. (4) The basis on which the amount of the payment was determined and the consideration received for it.*

*Item 2.27 - Variations in Sales Load Except as Permitted by Rule (Section 22(d) of the Act)*

*If during the fiscal year the public offering prices of the registrant's shares were determined on a basis which resulted in any variations in sales load other than as permitted by Rule 22d-1 under the Act (17 CFR 27022d-1) or other rules under Section 22(d) of the Act, cite the specific order, if any, of the Commission exempting such variations therefrom, or, in the absence of any such order, state the facts with respect to such variations.*

On April 30, 1985, the SEC transitioned from the annual N-1R filing to the semiannual N-SAR form.<sup>2</sup> The transition was made in response to changes in the investment company industry and the SEC's procedures for routine inspections of investment companies as well as a desire for greater standardization of investment companies' responses. Table IA.III contains a description of all of the items contained in the N-SAR form.<sup>3</sup> The relevant questions on broker compensation are listed below and have remained virtually unchanged since 1985:

*Item 30.A - Total front-end sales loads collected from sales (including exchanges) by principal underwriter or by any underwriter which is an affiliated person of the principal underwriter, of Registrant's/Series' shares during the current period:*

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<sup>2</sup> 50 Federal Register 1442, January 11, 1985.

<sup>3</sup> For the full text of all questions contained in the N-SAR, see the SEC's description of the form: <http://www.sec.gov/about/forms/formn-sar.pdf>.

*Item 31.A - Net amount retained by Registrant's/Series' principal underwriter or by any underwriter or dealer which is an affiliated person of the principal underwriter thereof from front-end sales loads collected from sales of Registrant's/Series' shares during the current period:*

*Item 32 - Amount Registrant's/Series' principal underwriter and any underwriters or dealers which are affiliated persons of the principal underwriter paid to dealers which are not affiliated persons of the principal underwriter for selling Registrant's/Series' shares that were sold with a front-end sales load during current period:*

*Item 33 - Amount paid to a captive retail sales force of Registrant's/Series' principal underwriter or of any underwriter or dealer which is an affiliated person of the principal underwriter for selling Registrant's shares that were sold with a front-end sales load during current period.*

Only the N-SAR data, not the N-1R data, are electronically available, and the N-SAR data are only available as of 1993 for those filings made through the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system. As part of a trial, some investment company registrants began filing their N-SARs on April 26, 1993.<sup>4</sup> On December 19, 1994, the SEC finalized the EDGAR filing rules<sup>5</sup> and over the next 11 months all investment company registrants began submitting their N-SARs in electronic form.<sup>6</sup>

While it would be interesting to examine the full history of the N-1R and N-SAR filings, there are several problems with the early data that make it impossible to use. First, the questions used in the original N-1R filing were open-ended and the lack of standardization made it difficult to compare answers across funds. This was actually a principal motivation behind the change to the more standardized N-SAR filing. Second, the N-1R asked funds to report on their gross brokerage commissions and did not ask for the dollars or flows associated with these gross commissions, making it impossible to directly link payments to flows. Third, there is no separate reporting required for captive and unaffiliated brokerage in the N-1R. After 1985, the SEC started to use the N-SAR forms, which provide greater comparability across funds; however, the SEC only releases the non-electronic filings on a fund-filing by fund-filing basis with special permission of the SEC. Our data therefore use everything electronically available to the public as of 1993.

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<sup>4</sup> 58 Federal Register 14848, March 18, 1993.

<sup>5</sup> 59 Federal Register 67752, December 30, 1994.

<sup>6</sup> All investment management registrants who were not filing electronically at that point were placed into one of four groups that were phased into mandatory electronic filing throughout 1995 so that by November 6, 1995, all investment management registrants were filing electronically.

**Table IA.I**  
**Part I of Form N-1R**

This table outlines the contents of Part I of form N-1R, an annual filing required by the SEC for all investment management companies from January 1965 until April 1985.

| Item | Contents  |
|------|---|
| 1.01 | Securities Registered on Exchanges  |
| 1.02 | Diversification of Assets   |
| 1.03 | Underwriting Commitments  |
| 1.04 | Tax Stats   |
| 1.05 | Condensed Financial Information   |
| 1.06 | Asset Coverage of Senior Securities   |
| 1.07 | Issuance and Redemption of Securities   |
| 1.08 | Persons in Control Relationship with Registrant   |
| 1.09 | Persons Owning Equity Securities of Registrant  |
| 1.10 | Number of Holders of Equity Securities  |
| 1.11 | Directors, Officers, Members of Advisory Board, and Certain Employees and Legal Counsel   |
| 1.12 | Remuneration of Directors, Officers and Members of Advisory Board   |
| 1.13 | Remuneration of Certain Other Affiliated Persons  |
| 1.14 | Indemnification of Directors and Officers   |
| 1.15 | Employees of Registrant   |
| 1.16 | Custody of Securities and Similar Investments   |
| 1.17 | Fidelity Bond   |
| 1.18 | Investment Advisers   |
| 1.19 | Entry into or Renewal of Investment Advisory Contract   |
| 1.20 | Business and Other Connections of Management and of Investment Adviser  |
| 1.21 | Personnel of Investment Adviser   |
| 1.22 | Services Provided by Investment Adviser   |
| 1.23 | Administrative and Other Services   |
| 1.24 | Other Persons Furnishing Investment Advice  |
| 1.25 | Portfolio Turnover Rates  |
| 1.26 | Purchases of Securities on Margin; Joint Trading; Short Sales   |
| 1.27 | Holdings of "Restricted Securities" Other Than Straight Debt Securities   |
| 1.28 | Purchases of Portfolio Securities Shortly Prior to Ex-Div. Dates  |
| 1.29 | Monthly Sales of Registrant's Shares; Dividends, Capital Gains, and Other Distributions   |
| 1.30 | Solicitation of Proxies   |
| 1.31 | Practice Regarding Participation by Brokers and Dealers in Commissions or Other Compensation Paid on Portfolio Transactions of Registrant                 |
| 1.32 | Interests of Certain Persons in Investment Adviser, Principal Underwriter or Certain Brokers and Dealers; Commissions Paid to Certain Brokers and Dealers |
| 1.33 | Policy with Respect to Trading in Securities by Certain Affiliated Persons of Registrant or of Investment Adviser   |
| 1.34 | Business of Principal Underwriters  |
| 1.35 | Management of Principal Underwriters  |
| 1.36 | Compensation of Principal Underwriters  |
| 1.37 | Other Payments by Registrant to Underwriters or Dealers   |
| 1.38 | Entry Into or Renewal of Principal Underwriting Contract  |
| 1.39 | Financial Statements and Exhibits   |

**Table IA.II**  
**Part II of Form N-1R**

This table outlines the contents of Part II of form N-1R, an annual filing required by the SEC for all investment management companies from January 1965 until April 1985.

| Item | Contents  |
|------|---|
| 2.01 | Attendance of Directors and Members of Advisory Board of Registrant at Formal Meetings  |
| 2.02 | Purchase and Sale Transactions Within Six-Month Period  |
| 2.03 | Procedures with Respect to Stated Policies  |
| 2.04 | Purchase of Securities During Underwriting by Affiliated Principal Underwriter  |
| 2.05 | Purchase of Securities of or Other Interest in Investment Company Investment Adviser, Broker, Dealer, Underwriter, or Insurance Company |
| 2.06 | Vacancies in Board of Directors of Registrant; Percent of Board Elected by Security Holders   |
| 2.07 | Transactions Between Registrant or Controlled Company and Affiliated or Certain Other Persons   |
| 2.08 | Transactions Between Registrant and Certain Affiliated Persons of Directors or Officers of Investment Adviser or Principal Underwriter  |
| 2.09 | Remuneration of Certain Affiliated Persons Acting as Agent in Property Transactions or as Broker in Securities                          |
| 2.10 | Deposit of Funds in Banks Other Than Custodian Banks  |
| 2.11 | Fidelity Bond   |
| 2.12 | Disposition of "Restricted Securities" Other Than Straight Debt Securities  |
| 2.13 | Dividends or Distributions Requiring Written Statement to Stockholders of Registrant  |
| 2.14 | Cross-Ownership and Circular Ownership  |
| 2.15 | Periodic Calculation of Current Net Asset Value Per Share of Registrant's Outstanding Capital Stock                                     |
| 2.16 | Selection and Ratification of Accountants and Auditors; Preparation of Financial Statements Filed with Commission                       |
| 2.17 | Total Brokerage Commissions Paid on Portfolio Transactions of Registrant; Ten Largest Participating Brokers in Commissions Paid         |
| 2.18 | Portfolio Transactions by Registrant with Brokers and Dealers Acting as Principal   |
| 2.19 | Portfolio Transactions by Registrant with Brokers or Dealers in Return for Benefits Provided to Other Persons                           |
| 2.20 | Family Relationships of Certain Affiliated Persons of Registrant  |
| 2.21 | Transactions Between Investment Adviser, Principal Underwriter, or Certain Brokers and Unaffiliated Directors or Officers of Registrant |
| 2.22 | Indebtedness of Unaffiliated Directors or Officers of Registrant to Investment Adviser or Principal Underwriter                         |
| 2.23 | Procedures Followed Upon Receipt of Orders for Purchase, Repurchase, or Redemption of Registrant's Shares                               |
| 2.24 | Time Lapse Between Sale of Shares of, and Receipt of Proceeds by, Registrant  |
| 2.25 | Suspension or Postponement of Right of Redemption   |
| 2.26 | Exchange Offers Made to Shareholders of Registrant or of Any Other Open-End Company   |
| 2.27 | Variations in Sales Load Except as Permitted by Rule  |
| 2.28 | Ten Largest Dealers in Registrant's Shares  |
| 2.29 | Shares of Registrant Sold Pursuant to Periodic Payment Plans of the Installment Type  |

**Table IA.III**  
**Form N-SAR**

This table outlines the contents of form N-SAR, a semiannual filing required by the SEC for all investment management companies from April 1985 until today.

| Item(s)               | Contents  |
|-----------------------|---|
| 1-7, 27, 58-61, 78-79 | Registrant Information                                      |
| 8                     | Investment Adviser  |
| 10                    | Administrator   |
| 11                    | Principal Underwriter                                       |
| 12                    | Shareholder Servicing Agent                                 |
| 13                    | Independent Public Accountant                               |
| 14                    | Affiliated Broker/Dealer                                    |
| 15,18                 | Custodian   |
| 19                    | Fund Family   |
| 20-26                 | Broker-Dealers/Portfolio Transactions/Brokerage Commissions |
| 28                    | Monthly Sales/Repurchases of Fund Shares                    |
| 29-39                 | Front/Deferred Loads, Redemption/Account Fees               |
| 40-44                 | 12b-1 Plan/Fees   |
| 45-54                 | Advisory Contract/Fees                                      |
| 62-65                 | Fixed Income Investment Characteristics                     |
| 66-69                 | Equity Investment Characteristics                           |
| 70                    | Investment Practices  |
| 71                    | Portfolio Turnover  |
| 55,72-76              | Financial Information - Income/Expenses, Balance Sheet, TNA |
| 77                    | Accompanying Filings  |
| 80-85                 | Fidelity Bond   |
| 86-88                 | Close-End Investment Company Data                           |
| 89-110                | Small Business Investment Company Data                      |
| 111-133               | Unit Investment Trust Data                                  |

## *B. Matching of N-SAR Data with Morningstar*

After matching the N-SAR and Morningstar data by hand, three restrictions are placed on the sample to ensure exact matches and remove data errors. First, we force all our matched observations to have at least one share class with the same net asset value in Morningstar as is reported in N-SAR (question 74.V1 and 2). This reduces the number of observations by 45%.<sup>7</sup> Second, each observation must have at least one continuous year of historical information, reducing the sample by 11%. Lastly, several data entry filters are applied that remove 2.9% of the sample.

Data entry errors relate mainly to funds that file N-SAR data in incorrect units. The instructions for filing the N-SAR forms clearly indicate that fund families should report the flow and load data in thousands of dollars (Q28 to Q33). However, comparing fund flows and loads with the size of the fund provided in the N-SAR, it is clear that some funds fail to report this information in the correct units, sometimes listing dollars or millions of dollars instead. To address these problems with flows, three scaling filters are employed: (1) the reported monthly redemptions or inflows were on average more than 100% of the total net assets (TNA) for the entire N-SAR reporting period; (2) the reported monthly redemptions, inflows, or net flows in one month over the N-SAR reporting period were more than 50% of TNA; and (3) the reported monthly redemptions, inflows, or net flows implied a TNA less than 95% of its previous value.

In addition, we also remove entries where loads and unreimbursed 12b-1 payments exceed regulatory maximums set by the SEC as these look to be data entry errors. Specifically, we remove observations where the front loads, back loads, and redemption fees are greater than 8.5%, 6%, and 2%, respectively.<sup>8</sup> In addition, we remove entries where the reported allocation to brokers exceeds the total front load collected by the fund family. In the case of unreimbursed 12b-1 payments, the statutory maximum 12b-1 is 1%, but funds enjoy some discretion regarding the denominator of this ratio and at what time during the year to disburse 12b-1 fees so we allow some flexibility and only remove observations when 12b-1 payments are greater than 1.25% of total net assets.

## *C. Comparing N-SAR Data with Morningstar*

This appendix compares the N-SAR data collected with corresponding data from the Morningstar database for a sample of matched fund-date observations. Table IA.IV provides mean, median, and correlation for the N-SAR and Morningstar matched observations. The same

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<sup>7</sup> The N-SAR data only report net asset value for two share classes so we compare these net asset values across all share classes in Morningstar, and if there is any match the observation is retained.

<sup>8</sup> Rule 2830 of the NASD Conduct Rules caps loads at a maximum of 8.5% and Rule 22c-2 of the Investment Company Act of 1940 limits the maximum redemption fee to 2%. Although the 8.5% maximum applies to back loads as well, when we analyze maximum back loads for all funds in the Morningstar database over our sample, we never find a maximum load greater than 6%. As a result, we use 6% as our cutoff.

filters applied in the analysis are applied to both the N-SAR and the Morningstar data.<sup>9</sup> Once the data are filtered, the overall correspondence between the Morningstar and N-SAR data is strong. Correlations for like variables range between 0.91 and 0.96. The table also highlights two important points regarding the N-SAR data relative to Morningstar. First, the N-SAR data are given in aggregate for all share classes of the fund. When analyzing fund level data using the CRSP or Morningstar data, researchers often create fund-level variables by value-weighting the share-class-level data. To do this they either rely on share class mappings that are incomplete or create their own. This can lead to errors and in fact, in unreported results, when we compare the N-SAR and Morningstar expenses for funds with multiple share classes (i.e., where a share class mapping is required), the correlation drops from 0.93 to 0.76. This is consistent with errors in the Morningstar mapping (or the CRSP mapping) leading to errors in the value-weighted expenses data and other variables that require value-weighting across share classes.

Second, N-SAR data are actually better at accommodating different fiscal and calendar year-ends, which are problematic in the CRSP and Morningstar databases. In CRSP and Morningstar, variables such as expenses, 12b-1 fees, and turnover are reported for the fiscal year of the fund while assets and performance are given by calendar year.<sup>10</sup> In contrast, the expenses and 12b-1 fees in N-SAR are collected for the six-month reporting period so they reflect the actual amounts paid for that period and can be aligned exactly with the average net assets and performance over the calendar dates of the reporting period. To do the same alignment with Morningstar and CRSP requires a fiscal year-end variable that is often missing.

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<sup>9</sup> In the case of turnover, which is not used in our analysis but is included as another point of comparison, we filter data entry errors by removing the top and bottom 0.25% of observations.

<sup>10</sup> For example, the CRSP manual indicates that “Expense Ratio as of the most recently completed fiscal year” and all of the fee/turnover data are given for the fund’s fiscal year.



**Table IA.IV**  
**Morningstar and N-SAR Matched Sample Comparison**

This table compares the variables from the N-SAR form with those reported in the Morningstar database from a subsample of fund monthly, semiannual, and annual observations. The table provides the mean, median, pair wise correlation, number of observations, and units for each variable from the Morningstar (MSTAR) and N-SAR (NSAR) databases. For the Morningstar variables, monthly net flow is calculated as  $(TNA_{i,t} - TNA_{i,t-1}) / TNA_{i,t-1} * (1 + r_{i,t})$  for each fund  $i$  in month  $t$ . Annual expenses are the fund's expense ratio for the subset of funds that have a single share class. Annual turnover is the minimum of the fund's purchases and sales divided by the monthly average TNA over the same period. The N-SAR variables are taken from the fund's annual or semiannual filing. Net flow from the N-SAR form is monthly new inflows, Q28a.1 to Q28f.1, minus monthly redemptions, Q28a.4 to Q28f.4. The N-SAR semiannual fund size is from Q75b. N-SAR expenses are the total net expenses of the fund (Q97x) minus reimbursements (Q97y) divided by average net assets for the reporting period (Q75b)). Annual turnover from the N-SAR form comes from Q71d for annual filings only. The maximum front load is provided in Q30b of the N-SAR.

| Variables                                  | Source | Units        | Mean    | Median | Correlation | Obs     |
|--|--------|--------------|---------|--------|-------------|---------|
| Net Flows (Monthly)                        | MSTAR  | % TNA        | 1.09%   | 0.06%  | 0.91        | 446,081 |
|  | NSAR   |              | 1.04%   | 0.05%  |             |         |
| Fund Size (6-Month Average)                | MSTAR  | \$ '000,000  | 1080.04 | 182.55 | 0.96        | 66,125  |
|  | NSAR   |              | 1084.28 | 179.73 |             |         |
| Annual Expenses (Single share class funds) | MSTAR  | % TNA        | 1.03%   | 1.00%  | 0.93        | 20,553  |
|  | NSAR   |              | 1.02%   | 0.98%  |             |         |
| Annual Turnover                            | MSTAR  | % TNA        | 91.78%  | 56.00% | 0.94        | 28,466  |
|  | NSAR   |              | 92.85%  | 56.00% |             |         |
| Max Front Load (Load funds only)           | MSTAR  | % Inflows    | 4.80%   | 5.00%  | 0.94        | 14,455  |
|  | NSAR   | Subj to Load | 4.79%   | 5.00%  |             |         |