Supplementary Appendix for

ESG Preference, Institutional Trading, and Stock Return Patterns

Variable Definitions

Mispricing Measures

SUE score: Standardized unexpected earnings score is computed as the difference between current quarter's earnings and the earnings four quarters ago, then divided by the standard deviation of unexpected earnings over the last eight quarters.

SYY score: SYY score, ranging between -100 and -1, is the opposite of composite mispricing measure in Stambaugh et al. (2015). Stocks with the lowest SYY values are most "overpriced" and those with the highest values are most "underpriced". Updated monthly.

Corporate Social Performance (ESG) measures

ESG score: Net score provided by MSCI ESG STATS (formerly known as KLD), calculated as the sum of Strengths minus the sum of Concerns. Five dimensions are considered, including Corporate Governance, Community, Diversity, Employee Relations and Environments. Updated annually.

Socially Responsible Institutional Ownership (SR_IO) measures

SR_IO: Percentage of shares held by socially responsible institutions out of shares held by all the institutions. We use size-adjusted ESG score to calculate value-weighted ESG scores (ISRS) for all the institutions and define top tercile as socially responsible institutions. Updated quarterly.

SR_MO :   Percentage of shares held by socially responsible active mutual funds out of shares held by all the active mutual funds. We use size-adjusted ESG score to calculate value-weighted ESG scores for all the active mutual funds and define top tercile as socially responsible active mutual funds. Updated quarterly.

Stock Price Efficiency

Price Delay: Price Delay, proposed by Hou and Moskowitz (2005), measures the degree of a stock's return variation captured by lagged market returns. Higher Price Delay measure indicates stronger delay in response to return innovations. We run weekly return regression over each calendar year on contemporaneous and four weeks of lagged market returns as follows,

$$r_{j,t} = \alpha_j + \beta_j R_{m,t} + \sum_{n=1}^{4} \delta_j^{(-n)} R_{m,t-n} + \varepsilon_{j,t}$$

Price Delay measure is one minus the ratio of the R^2 from above regression restricting $\delta_j^{(-n)} = 0$, $\forall n \in [1,4]$, over the R^2 with no restrictions.

$$Price\ Delay = 1 - \frac{R^2_{\delta_j^{(-n)}=0, \forall\ n \in [1,4]}}{R^2}$$

Stock Characteristics

Size: The market value of the firm's equity at the end of previous month.

Size ranking (%):   The size percentiles are defined using the full CRSP sample each month.

Ln(ME):   The natural logarithm of the market value of the firm's equity at the end of last year.

Ln(BM):   The natural logarithm of book equity for the fiscal year-end in a calendar year divided by market equity at the end of December of that year, as in Fama and French (1992).

Institutional ownership: The percentage of common stocks owned by institutions in the previous quarter.

Lendable shares (%):   Lendable shares is the daily average of shares available for lending relative to a firm's total shares outstanding within a month.

Stock lending fee (%):   The indicative lending fee from Markit at the end of last month.

Analyst coverage: The number of analysts following the firm in the previous month.

IVOL: Idiosyncratic volatility, as in Ang, Hodrick, Xing, and Zhang (2006), computed as the standard deviation of the regression residual of individual stock returns on the Fama and French (1993) three factors using daily data in the previous month.

Stock turnover: The total stock trading volume scaled by the average daily shares outstanding in the previous month.

Stock-level investment horizon :   The investment horizon of a firm's institutional investors is defined as the reciprocal of the weighted average of the churn ratios of the holding institutions in the previous quarter. The churn ratio for each institution each quarter is calculated using the procedure by Gaspar et al. (2005).

NT_IO: Non-transient institutional ownership (NT_IO) is the percentage of shares held by non-transient institutions out of shares held by all the institutions. Non-transient institutions are defined based on Bushee (2001).

ROE: Return on equity is net income divided by the shareholder equity last year.

Institution Characteristics

AUM ($billion):   Total market value of stocks in the institutions' portfolio in the end of each quarter.

Churn ratio: A higher churn ratio indicates shorter investment horizon. It is calculated for each institution each quarter, following the procedure used by Gaspar et al. (2005). For each institution j holding stock universe I, at the end of quarter t, we calculate churn ratio using:

$$Churn\ Ratio_{j,t} = \frac{\sum_{i \in I} |N_{j,i,t}P_{i,t} - N_{j,i,t-1}P_{i,t}|}{\sum_{i \in I} \frac{(N_{j,i,t}P_{i,t} + N_{j,i,t-1}P_{i,t-1})}{2}}$$