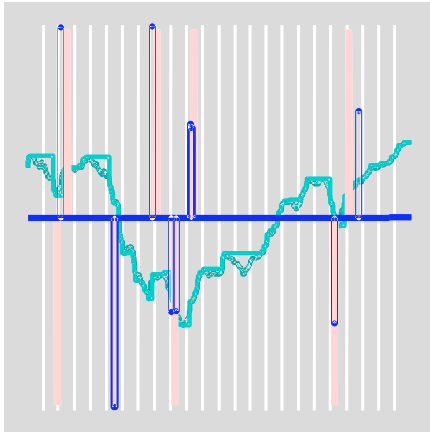


## Shareholder Activity Analysis

Synterein works with one of the nation's largest investment management organizations to detect market timing behavior in shareholder purchase and redemption activity



"Final Rule: Disclosure Regarding Market Timing and Selective Disclosure of Portfolio Holdings." It might as well be a headline, this title of a recent SEC release that amends Parts 239 and 274 of Title 17 in the Code of Federal Regulations. The SEC now requires open-end management investment companies to disclose their policies and procedures regarding frequent purchases and redemptions.

In order to join the SEC in protecting most shareholders from a few, one of the nation's largest investment management organizations engaged Synterein to develop analytical approaches for detecting market timing, and other undesirable activity, in shareholder purchase and redemption activity.

Synterein worked with this organization to select a representative fixed income and equity fund for analysis. Daily transaction and pricing data, and end of year balance data, were obtained for a recent five year period. Based on Synterein's research and on input from this investment management organization, Synterein tested shareholder purchase and redemption activity for evidence of stale price and price momentum strategy following.

The stale price strategy involves buying shares at the end of days on which a signal is up and switching to cash at the end of days on which a signal is down. A shareholder successfully following this strategy can profit from as few as six round-trip trades per year<sup>1</sup>. Synterein measured success as the rate a shareholder purchases (or exchanges in) shares before or during days on which the NAV increases and redeems (or exchanges out) shares before or during days on which the NAV decreases<sup>2</sup>. Synterein identified successful investors considering multiple factors, including success rate and the percentage of redemptions that involved exchanges in the expected order.

The price momentum strategy involves buying shares once the NAV has increased by a threshold relative to the previous low and redeeming shares if the NAV decreases by a threshold relative to the previous high. Synterein measured success as the rate a shareholder purchases (or exchanges in) shares in the days following a buy signal and redeems (or exchanges out) shares in the days following a redeem signal. Synterein identified successful investors by considering a range of NAV change thresholds, using the same threshold for buying and selling, and selecting the threshold that gave the maximum success rate. The purchase or

redemption signal was allowed to persist for a number of days following a purchase or redemption signal equal to the minimum of ten days or one quarter the mean time between signals.

In order to confirm that the identified shareholder activity would not occur by chance, Synterein tested actual cash flows and cash flows of the same number and amount but random trade date. Using this procedure, Synterein demonstrated reliable detection of both stale price and price momentum successful investors. As a result, the next headline might be "Investment Companies Join SEC in Eliminating Market Timers."



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Stale Price Successful Investors

Account	Fund	Successful Buys	Successful Sells	Nonzero Cash Flows	Success Rate (%)	Dollar Volume (\$k)
1	A	7	7	14	100	2932.8
2	A	11	10	22	95.5	1416.6
6	A	11	10	22	95.5	1274.9
7	A	5	4	10	90	1065.6
8	A	4	4	8	100	929.2
9	A	4	3	8	87.5	918
10	A	5	4	10	90	620.3
11	A	5	4	10	90	604.7
12	A	5	4	10	90	604.7
14	B	3	3	8	75	588.1

<sup>1</sup> Chalmers, J. M. R., R. M. Edelen, and G. B. Kadlec, 2001, On the perils of financial intermediaries setting security prices: The mutual fund wild card option, *The Journal of Finance* 56 (6), 2209-2236.

<sup>2</sup> Greene, J. T. and C. W. Hodges, 2002, The dilution impact of daily fund flows on open-end mutual funds, *Journal of Financial Economics* 65, 131-158.