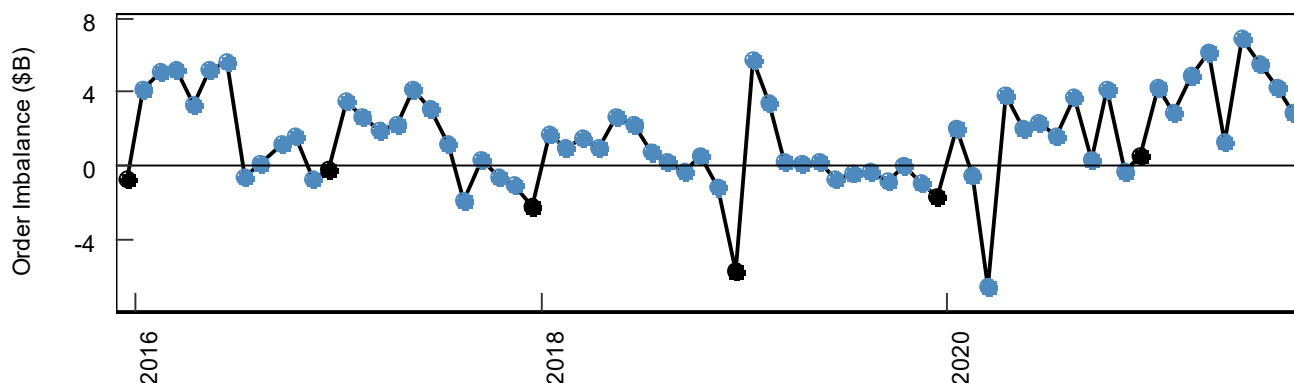


Big Data and AI Strategies

Do Retail Investors Harvest Tax Losses?

- Tax loss harvesting is a tax-aware trading strategy where an investor sells their losing positions before the tax year end in order to generate capital losses and reduce taxes. It is a rational and profitable strategy and can yield a 'tax alpha' of up to 1.1% per year for retail investors¹. Previous academic studies have shown that retail investors are tax aware². However, those studies are largely done using nonpublic brokerage account data and are difficult to replicate.
- Given the dramatically higher retail participation in the US equity market, and the much lower barrier to trade thanks to commission free trading, retail investors' tax loss harvesting behaviour and market impact may become increasingly relevant for institutional investors.
- In this report, using our retail order flow data, we verify retail investors employ the strategy in their trading. Moreover, we are able to identify stocks that experience tax loss harvesting and show their subsequent performance recovery.
- Based on our data on the Russell 3000 universe, in Figure 1 we observe the aggregate order flow imbalance on a monthly basis. Order flows were negative in five of the six Decembers between 2015 and 2020. The average December monthly retail order flow is -\$1.6B, compared to long-term average of +\$1.5B. In other words, retail investors are much more inclined to sell their stocks in December compared to other months.

Figure 1: December retail order flow imbalance tends to be negative (black = December)



Source: J.P. Morgan

- Next we investigate whether the stocks being sold are more likely to be underperformers. In order to do so we rank the stocks by their Standardized Order Imbalance (SOI), as defined by Barber, Lin and Odean (2021)³.

$$SOI_{it} = \frac{(Imb_{it} - \overline{Imb_t})}{\sigma_{it}}$$

¹ Chaudhuri, Shomesh E., Terence C. Burnahm, Andrew W. Lo, 2020, An Empirical Evaluation of Tax-Loss Harvesting Alpha, Financial Analyst Journal, Vol 76, Issue 3

² Barber, Brad M., Terrance Odean, 2003, Are Individual Investors Tax Savvy? Evidence from Retail and Discount Brokerage Accounts, Journal of Public Economics 88 (2003) 419 – 442

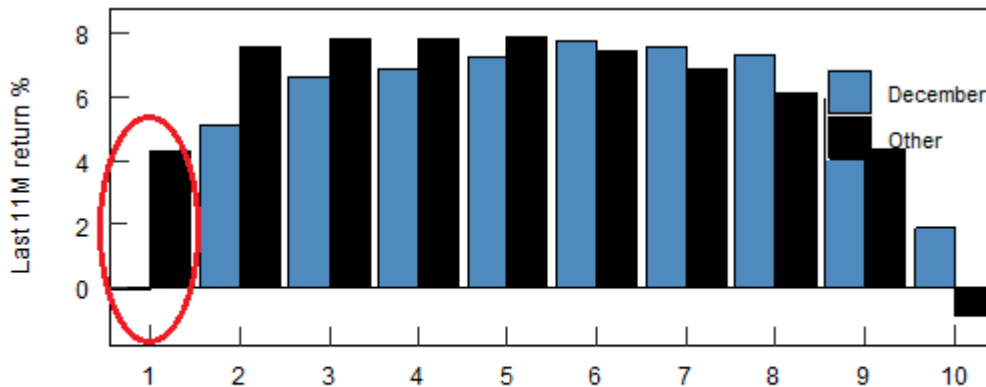
³ Barber, Brad M., Shengle Lin, Terrance Odean, 2021, Resolving a Paradox: Retail Trades Positively Predict Returns but are Not Profitable, working paper

$$\sigma_{it} = \frac{1}{buy_{it} + sell_{it}} \sqrt{(buy_{it} + sell_{it}) \cdot Imb_{it} \cdot (1 - Imb_{it})}$$

$$Imb_{it} = \frac{buy_{it}}{buy_{it} + sell_{it}}, \quad \overline{Imb}_t = \frac{\sum_i buy_{it}}{\sum_i buy_{it} + sell_{it}}$$

- Compared to the order imbalance we used in previous reports (buy minus sell over buy plus sell), the new measure adjusts the order flow imbalance by the market-wide imbalance, and scales it by the standard deviation of the imbalance. The advantage of this measure is that stocks with high imbalance but a small number of trades will be down weighted compared to stocks with low balance but a large number of trades. In this report we define buying and selling imbalance by the number of trades, rather than dollar amounts traded, in order to give more weights to the actions of small investors.
- In Figure 2 we sort the stocks into daily cross sectional deciles by their SOI, and compute their previous 11-month returns (i.e., approximately YTD returns for the December stocks). The results are divided into two groups, December and Other (Jan – Nov). There is little difference in the average past returns for the two groups. We see that the stocks that were most heavily sold in December (first decile) have significantly lower historical returns than in other months. Moreover, the historical returns of December deciles 1 – 5 are lower than the Other months. This suggests that retail investors may be more inclined to sell losing positions in December, as part of the tax loss harvesting strategy.

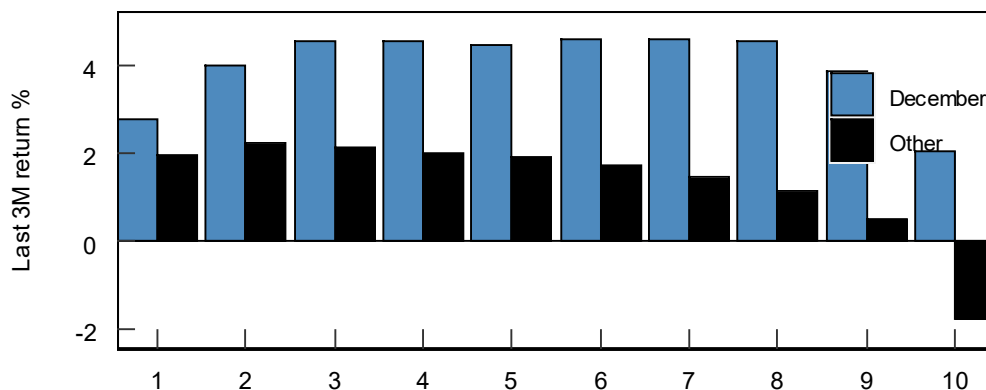
Figure 2: Last 11M returns of Russell 3000 stocks by SOI decile



Source: J.P. Morgan

- The observations persist when we narrow the return look back window to 9 and 6 months. When reduced to 3 months, the results are no longer clearly identifiable (Figure 3). We view it as evidence that for short-term holding periods, disposition effect (avoidance of realizing losses) appears to offset tax loss harvesting.

Figure 3: Last 3M returns of Russell 3000 stocks by SOI decile



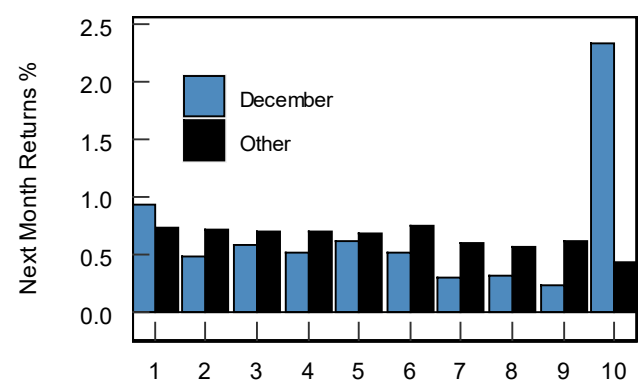
Source: J.P. Morgan

- Does the performance of the stocks driven by tax loss harvesting recover once the tax driven selling subsides? We measure the monthly SOI and sort the stocks into 10 deciles. Figure 4 shows their returns in the next

calendar month. The most heavily sold stocks (first decile) in December outperform the market average. In other words these stocks do recover from the temporary selling pressure. No outperformance is observed for the first decile stocks in the ‘Other’ cohort. Note the returns of the tenth decile in December are skewed by meme stocks including GME and AMC in Jan 2021.

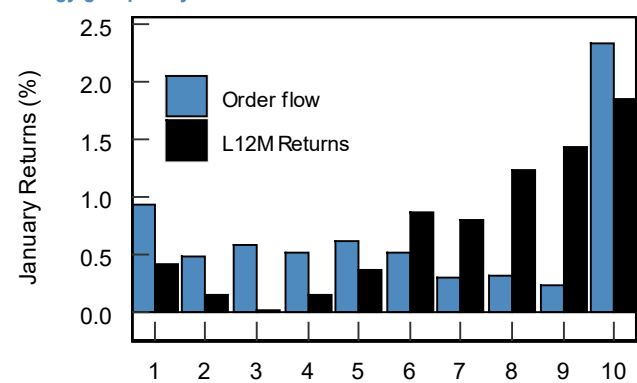
- To verify whether the December order flow is not simply a substitute for historical price returns, we additionally sort stocks by their calendar year returns. The January returns are then compared between December order flow deciles and return deciles (Figure 5). As we can see, order flow contains additional information than simple annual returns.

Figure 4: Next month returns grouped by order flow decile, December vs. other months



Source: J.P. Morgan

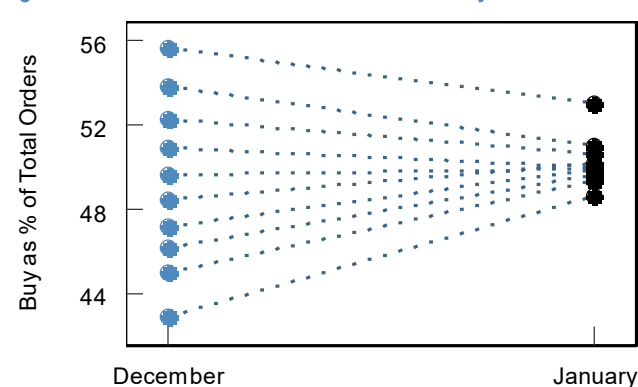
Figure 5: Order flow compared to simple return mean reversion strategy grouped by decile



Source: J.P. Morgan

- Is the better subsequent performance of most heavily sold stocks driven mainly by retail investors repurchases? This does not appear to be the case according to our data. In Figure 6 we track the average order imbalance of December SOI deciles in January. Although there is a degree of mean reversion, the SOI of the first decile remains lowest overall.

Figure 6: Retail order imbalance over time sorted by December SOI deciles



Source: J.P. Morgan

Global Quantitative and Derivatives Strategy

Peng Cheng, CFA ^{AC}

(1-212) 622-5036

peng.cheng@jpmorgan.com

Thomas J Murphy, PhD

(1-212) 270-7377

thomas.x.murphy@jpmchase.com

Marko Kolanovic, PhD

(1-212) 622-3677

marko.kolanovic@jpmorgan.com

J.P. Morgan Securities LLC

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