REVELATION INVESTMENT RESEARCH, INC.

RIR Product Usage Brief

February 2025

Overlaying Downside Risk Alert on Stocks with Large Recent Price Changes

Client Question

What is the interrelationship between recent stock price changes, current Downside Risk Alert scores (U.S. & International), future returns, and future risk?

RIR Reply

Large stock price changes are usually driven by the arrival of new information. Momentum strategies typically trade in the same direction as recent price changes on the belief that investors often underreact to news. By contrast, contrarian strategies often trade in the opposite direction of recent price changes on the belief that investors sometimes overreact to news. Clients have asked whether Downside Risk Alert (DRA) and Downside Risk Alert International (DRAI) can help identify investment opportunities among stocks experiencing large recent price changes – up and down.

To explore this question, we started in November 2001 by ranking MSCI U.S. IMI members and MSCI ACWI ex U.S. members (starting in 2003) into quintile (20%) groups according to their prior 3-month or 12-month price changes and their current DRA or DRAI scores. We placed stocks into 5x5 matrices based on their independent price change and model rankings. For each matrix cell, we counted the number of stocks and measured excess returns and standard deviation of returns over the subsequent 12 months. We repeated this ranking and return measurement process each month until January 2025 and computed average statistics over the entire 23+ year test period.

Tables 1 and 2 summarize our results for DRA and DRAI respectively. We start with two general observations. First, the column averages at the bottom of Panel 3 in both tables show that stocks with extreme recent price changes (quintiles 1 & 5) tend to have *high* subsequent volatility, indicating that screening for stocks with extreme prior price changes yields risky purchase candidate pools. Second, Panel 2 of each table shows that DRA and DRAI tend to assign *worse* scores to stocks with the highest recent price changes, further evidence of the general riskiness of these high momentum stocks.

While DRA and DRAI tend to disfavor stocks with strong recent price appreciation, these models can be great tools for momentum investors. For example, Tables 1 & 2 show that <u>among stocks with the highest 3M & 12M price momentum (quintile 1 column), those with the best DRA or DRAI ranks (top row) have had large positive subsequent excess returns and the lowest subsequent price volatility, while those with the worst model ranks (bottom row) have had large negative excess returns and the highest price volatility</u>.

Similarly, DRA and DRAI can also be great tools for contrarian investors. Tables 1 and 2 show that <u>among stocks with the worst 3M and 12M price momentum (quintile 5 column), those with the best DRA or DRAI ranks (top row) have had large positive subsequent excess returns and the lowest subsequent price volatility, while those with the worst model ranks (bottom row) have had large negative excess returns and the highest price volatility</u>.

In conclusion, this study shows that DRA and DRAI have been readily able to separate future winners from losers among stocks experiencing large recent price changes in either direction. DRA and DRAI's risk-first perspective helps distinguish between stocks whose prices may have underreacted or overreacted to recent information flows. More specifically, <u>DRA and DRAI's emphasis on financial quality, growth, and valuation helps momentum investors avoid overpaying for stocks with improving prospects and helps contrarian investors avoid value traps</u>.

Table 1: Prior Price Change, DRA Score, & 12M Subsequent Excess Returns, 11/2001-01/2025

Panel 1: 3M Prior Price Change & 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5	DRA Row Avg
DRA Top Qn	6.3%	3.5%	2.1%	1.8%	1.9%	3.1%
DRA Qn2	3.8%	1.7%	1.0%	0.6%	1.2%	1.7%
DRA Qn3	1.2%	0.5%	-0.3%	0.1%	0.4%	0.4%
DRA Qn4	1.0%	-1.0%	-1.2%	-1.2%	0.6%	-0.4%
DRA Bot Qn	-4.3%	-4.3%	-3.9%	-4.8%	-2.4%	-3.9%
Pch Col Avg	1.6%	0.1%	-0.5%	-0.7%	0.3%	

Panel 2: Proportion of Stocks in each Matrix Cell

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	1%	4%	5%	6%	3%
DRA Qn2	3%	4%	5%	5%	4%
DRA Qn3	4%	4%	4%	4%	4%
DRA Qn4	5%	4%	3%	3%	4%
DRA Bot Qn	8%	3%	2%	2%	4%

Panel 3: 3M Prior Price Change & Standard Deviation of 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	30.3%	25.5%	23.4%	23.9%	28.1%
DRA Qn2	36.3%	29.6%	28.6%	29.4%	34.9%
DRA Qn3	40.5%	33.9%	32.6%	33.9%	40.6%
DRA Qn4	50.7%	40.0%	39.5%	40.8%	51.8%
DRA Bot Qn	71.8%	57.2%	57.6%	55.2%	64.1%
Pch Col Avg	45.9%	37.3%	36.3%	36.6%	43.9%

Panel 1: 12M Prior Price Change & 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5	DRA Row Avg
DRA Top Qn	5.6%	3.2%	2.5%	1.8%	2.0%	3.0%
DRA Qn2	5.2%	1.5%	0.5%	1.0%	1.2%	1.9%
DRA Qn3	3.1%	0.6%	-0.7%	-0.7%	-0.2%	0.4%
DRA Qn4	3.1%	-0.8%	-2.5%	-2.4%	-0.4%	-0.6%
DRA Bot Qn	-2.3%	-4.8%	-5.3%	-6.4%	-3.6%	-4.5%
Pch Col Avg	2.9%	-0.1%	-1.1%	-1.3%	-0.2%	

Panel 2: Proportion of Stocks in each Matrix Cell

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	1%	3%	6%	7%	4%
DRA Qn2	2%	5%	5%	5%	4%
DRA Qn3	3%	5%	4%	4%	4%
DRA Qn4	5%	4%	3%	3%	4%
DRA Bot Qn	9%	3%	2%	2%	4%

Panel 3: 12M Prior Price Change & Standard Deviation of 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	32.2%	25.3%	24.3%	24.0%	27.2%
DRA Qn2	39.1%	29.1%	28.6%	29.3%	33.7%
DRA Qn3	42.6%	32.6%	32.6%	33.1%	39.2%
DRA Qn4	53.1%	40.1%	37.9%	39.2%	46.8%
DRA Bot Qn	71.7%	54.0%	56.0%	52.5%	62.0%
Pch Col Avg	47.8%	36.2%	35.9%	35.6%	41.8%

Table 2: Prior Price Change, DRAI Score, & 12M Subsequent Excess Returns, 01/2003-01/2025

Panel 1: 3M Prior Price Change & 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5	DRA Row Avg
DRA Top Qn	2.3%	2.0%	2.2%	1.9%	2.8%	2.2%
DRA Qn2	1.4%	0.6%	0.3%	0.4%	0.8%	0.7%
DRA Qn3	0.2%	-0.1%	-0.2%	-0.4%	0.9%	0.1%
DRA Qn4	-1.0%	-1.3%	-0.7%	-1.4%	0.1%	-0.9%
DRA Bot Qn	-2.7%	-2.9%	-2.6%	-3.5%	-2.1%	-2.7%
Pch Col Avg	0.1%	-0.3%	-0.2%	-0.6%	0.5%	

Panel 2: Proportion of Stocks in each Matrix Cell

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	2%	4%	5%	5%	4%
DRA Qn2	3%	4%	4%	4%	4%
DRA Qn3	4%	4%	4%	4%	4%
DRA Qn4	5%	4%	4%	4%	4%
DRA Bot Qn	6%	4%	3%	3%	4%

Panel 3: 3M Prior Price Change & Standard Deviation of 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	28.4%	24.6%	23.3%	23.7%	27.5%
DRA Qn2	32.1%	27.3%	25.8%	26.6%	29.9%
DRA Qn3	33.7%	29.1%	27.7%	28.8%	32.4%
DRA Qn4	38.2%	31.0%	31.8%	31.7%	38.0%
DRA Bot Qn	43.7%	38.3%	38.4%	36.9%	41.7%
Pch Col Avg	35.2%	30.1%	29.4%	29.6%	33.9%

Panel 1: 12M Prior Price Change & 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5	DRA Row Avg
DRA Top Qn	4.3%	2.3%	2.3%	1.6%	2.1%	2.5%
DRA Qn2	2.9%	1.1%	0.5%	0.0%	-0.5%	0.8%
DRA Qn3	0.6%	0.1%	0.3%	-0.1%	-0.4%	0.1%
DRA Qn4	0.1%	-0.6%	-1.5%	-1.3%	-1.4%	-0.9%
DRA Bot Qn	-1.7%	-2.6%	-3.4%	-4.0%	-3.2%	-3.0%
Pch Col Avg	1.2%	0.1%	-0.4%	-0.7%	-0.7%	

Panel 2: Proportion of Stocks in each Matrix Cell

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	2%	4%	5%	5%	4%
DRA Qn2	3%	4%	5%	5%	4%
DRA Qn3	4%	4%	4%	4%	4%
DRA Qn4	5%	4%	4%	3%	4%
DRA Bot Qn	7%	4%	3%	3%	4%

Panel 3: 12M Prior Price Change & Standard Deviation of 12M Subsequent Returns

	Hi Pchg Qn1	Pchg Qn2	Pchg Qn3	Pchg Qn4	Lo Pchg Qn5
DRA Top Qn	30.3%	24.8%	23.2%	23.1%	26.6%
DRA Qn2	33.9%	26.5%	25.5%	26.0%	29.6%
DRA Qn3	35.1%	28.3%	27.2%	28.5%	31.5%
DRA Qn4	38.7%	31.9%	30.2%	31.8%	36.3%
DRA Bot Qn	44.4%	36.9%	36.4%	36.1%	41.4%
Pch Col Avg	36.5%	29.7%	28.5%	29.1%	33.1%