

	STAP	DISC	HLTH
LGVL	13.9	32.1	23.6
LGCO	5.9	26.9	13
LGGR	11.2	26.4	20.4
MDVL	12.3	α	24

Searching for Alpha in Heat Maps: Heat-Seeking Alpha

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Knowledge must continually be renewed by ceaseless effort. Albert Einstein

The standard disclaimer that “Past performance is not an indicator of future performance” might not be true if momentum investing works, as many academics observe. Researchers have found that alpha can be generated by investing in yesterday’s winners. See the bibliography at the end of this commentary for articles that describe the exploitation of momentum effects. Investor behavior is the probable cause of momentum, believing we can buy past performance. Heat maps are good visuals for finding yesterday’s winners and losers. A heat map shows shades of green for “good,” which in this case is good performance, and shades of red for bad, indicating underperformance. Yellow is neutral. The idea is to focus on the dark greens and dark reds for clues on momentum and reversals. The opposite approach to momentum is “regression to the mean” which seeks reversals – winners switch to losers and vice versa.

Searching for Alpha

Most of the academic research on momentum has been conducted on the U.S. stock market, using momentum in styles or economic sectors. I’ve conjectured that if style or sector effects work individually, uniting them into sector-style segments should work even better. In addition to the U.S., I’ve decided to also seek alpha in foreign lands, where I use style-sector-country heat maps. The methodology is straightforward. I just made it up, so it may be that a more scientific approach could produce even better results. I take the three winners in the previous twelve months and invest equally in them for the next quarter. I call this “High” in what follows. For contrast, and to test for reversals, I do the same with the three biggest losers and call them “Low.” I use the past

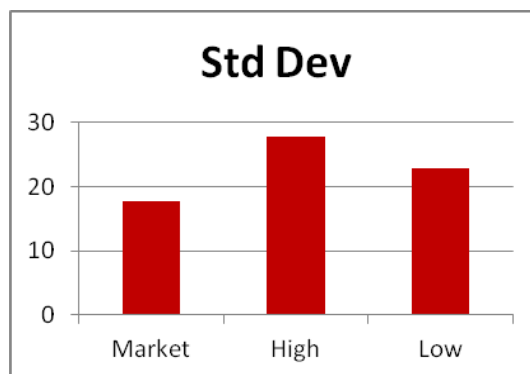
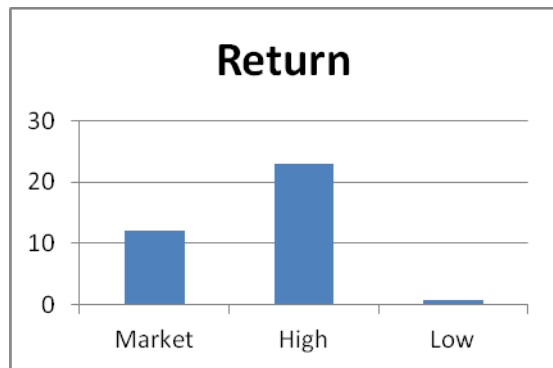
10.25 years ending March 31, 2013, but since the first year is used to generate the first signal, the results span the past 9.25 years, which is 111 months.

In the following I discuss the foreign results, then the U.S. results, and conclude with current heat maps that can be used today for potential profit. I'll report back in three months on how well these current heat maps have worked in producing alpha.

Foreign Results

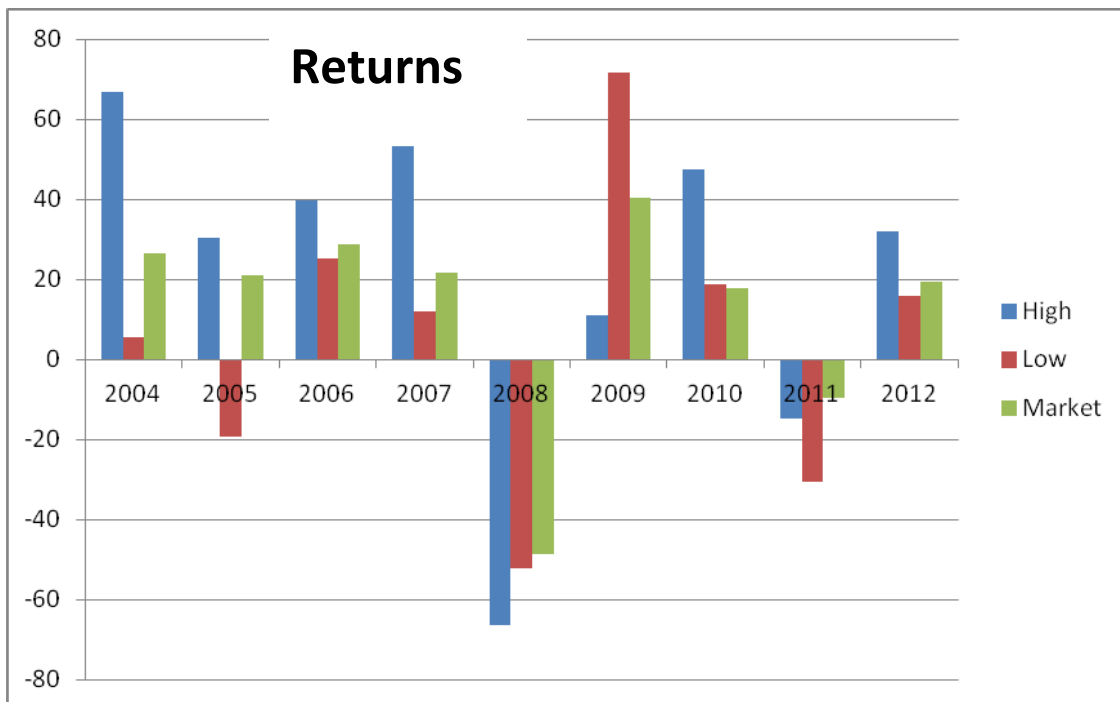
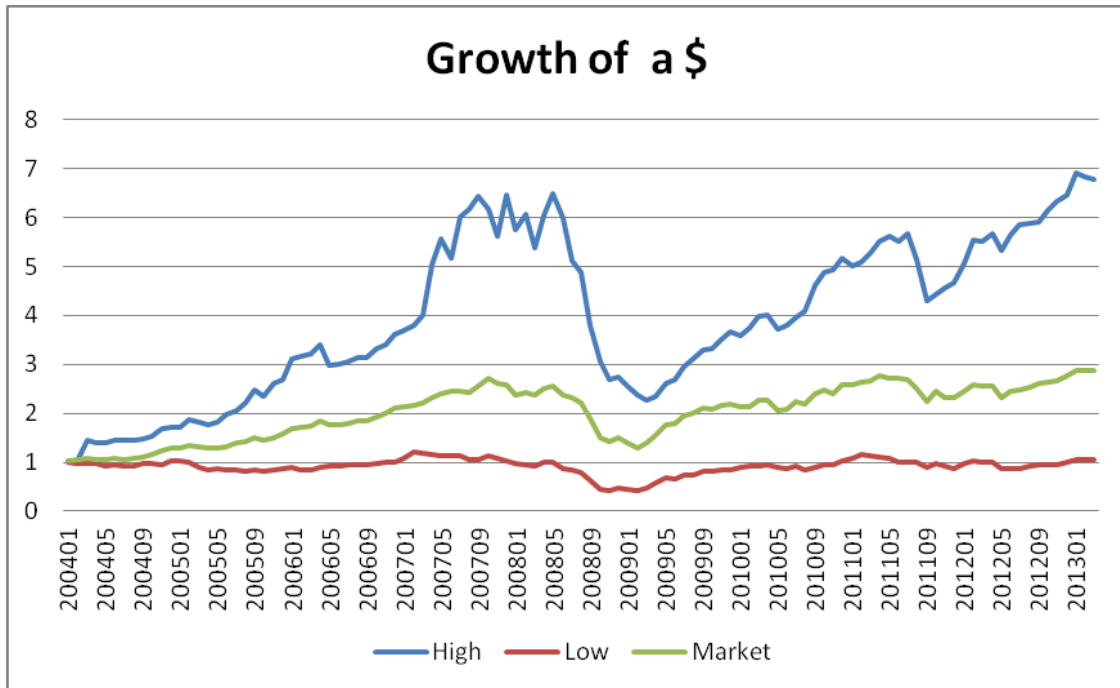
Momentum "worked" in the past nine years, except when it didn't. The following table and graph summarize the results: momentum earned a spectacular 5% per year alpha (beta =1.5), almost doubling the foreign market return.

Total market			High			Low			# Wins	# Losses
Avg Ret	Cum Ret	Std Dev	Avg Ret	Cum Ret	Std Dev	Avg Ret	Cum Ret	Std Dev		
1.09	12.06	17.7	2.05	22.99	27.8	0.28	0.67	22.8	79	32



Winners (High) persisted, as did losers (Low). Both were riskier than the market, due in large part to the riskier segments (e.g. small cap, emerging...) making it into the tops and bottoms most often.

A closer look, provided in the next two graphs, reveals that momentum did not work in 2008 and 2009. In fact it got slammed. Most quantitative managers are painfully aware of the failure of momentum investing in these two years.

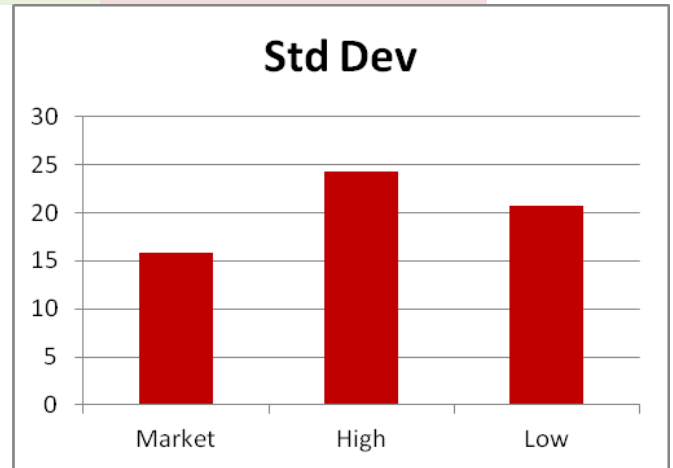
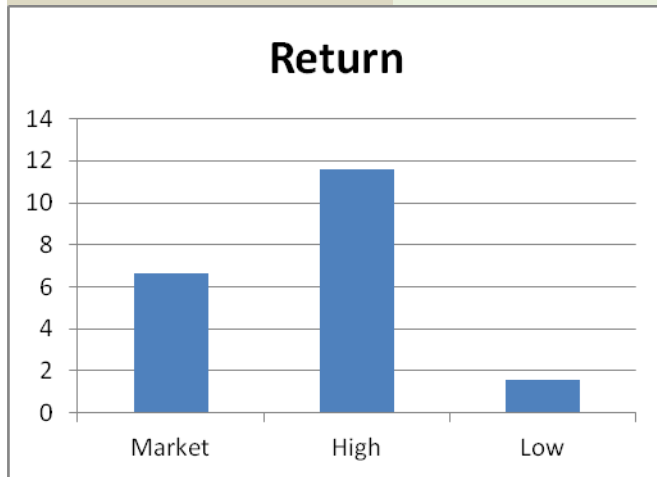


Nothing works all of the time. As you can see, momentum in foreign stocks has worked most of the time, producing substantial alpha. The results are similar for the U.S.

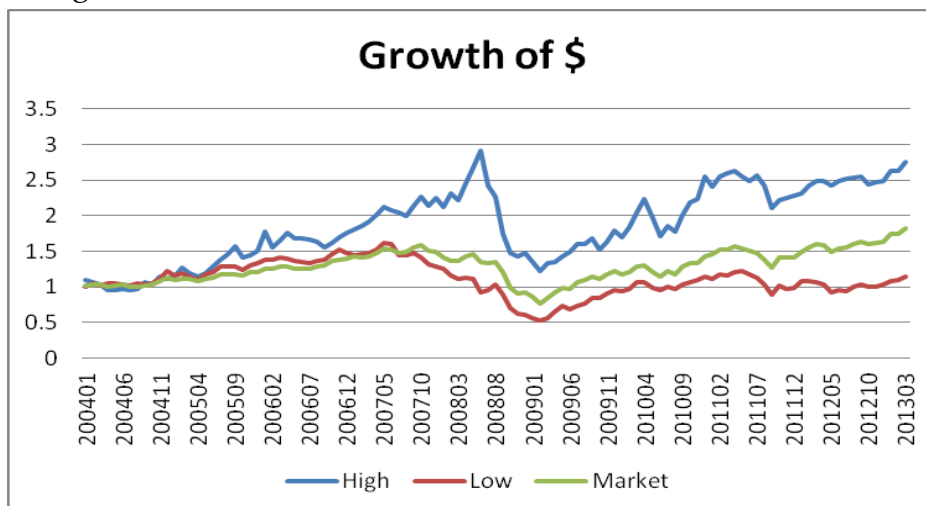
U.S. Results

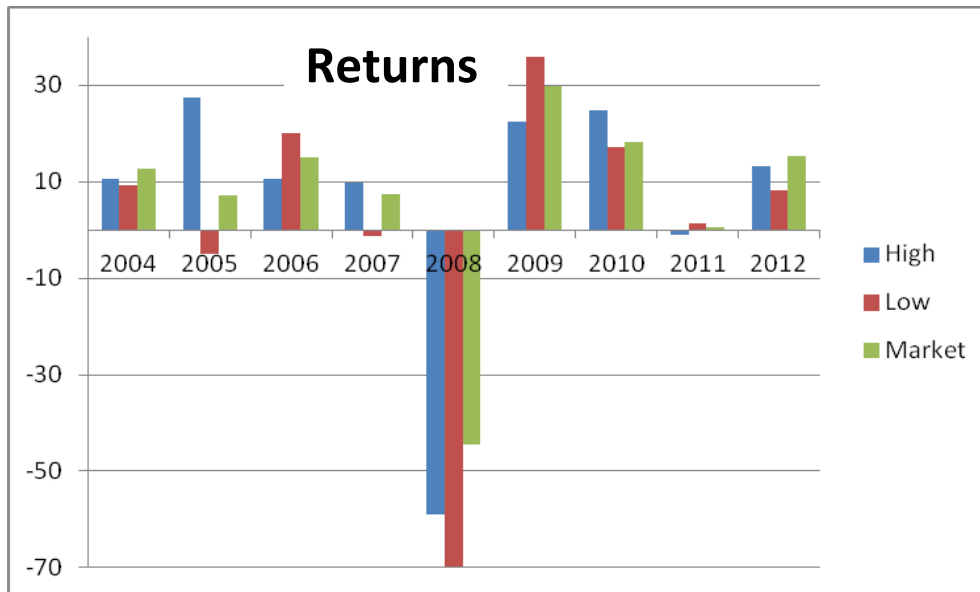
As the following table and graphs show, momentum has worked in the U.S. as well, but with less spectacular results, earning “only” a 3% alpha with a beta of 1.3.

Total market			High			Low			# Wins	# Losses
Avg Ret	Cum Ret	Std Dev	Avg Ret	Cum Ret	Std Dev	Avg Ret	Cum Ret	Std Dev	High	Low
0.65	6.67	15.78	1.17	11.58	24.24	0.31	1.54	20.77	69	42



Also like the foreign markets, momentum did not work in 2008 and 2009, but unlike foreign it also didn't work in 2006.





Overall, these results suggest that seeking alpha with momentum has been more fruitful outside the U.S., perhaps because these markets are less efficient.

Perspective

These analyses show that there is information in past performance that can be used to improve future investment results. The hardest part of predicting the future is understanding the past. Actual adoption of heat-seeking alpha will likely not employ my simple rule since it increases risk and transaction costs. Transaction costs are not included in the results above. Sophisticated investors can use heat maps like those provided in the next section below to improve decision making by focusing on the reds and greens for segments of the markets to emphasize or avoid depending on your assessment of momentum or reversal. *The future ain't what it used to be* (Yogi Berra).

Today's Heat Maps

The following heat maps show performance for the twelve months ending March 31, 2013. I'll track the current "High" and "Low" and report back to you in July. We'll see if momentum works in the second quarter of 2013. For example, the best performing foreign sector in the past twelve months has been Healthcare (HLTH) stocks in

Australia & New Zealand (AUST) with a 47.1% return. I use [Surz Style Pure](#)® style definitions throughout this analysis. Here's what I'll be tracking:

Foreign

High	Low
Healthcare in Australia & New Zealand	Energy stocks in Latin America
Financials in Australia & New Zealand	Small cap growth in Australia & NZ
Healthcare in Asia ex Japan	Materials companies in Canada

US

High	Low
Mid-cap Core Consumer Staples	Small-cap Core Telephones & Utilities
Small-cap Growth Financials	Small-cap Growth Materials
Small-cap Core Consumer Staples	Small-cap Growth Energy

Foreign Heat Map for the Year Ending March 31, 2013

	STAP	DISC	HLTH	MATL	TECH	ENER	INDU	UTEL	FINC	TOTL
LGVL	24.7	8	28.4	-3.4	-8.3	0.1	12.6	7.1	24.2	13.2
LGCO	21.3	13.2	30.4	-6.1	7.7	4.1	13.3	18.8	13.5	13.3
LGGR	22.6	15.6	25.3	-7.8	13.2	-3.8	11.2	35.6	11.4	11.6
MDVL	23.9	18.7	26.6	-0.3	7.7	7.7	11.8	9.1	23.5	15.5
MDCO	22.5	13	32.1	-0.2	2.3	6.7	9	7.7	19.3	12.4
MDGR	22.6	15.4	32.7	-9.5	6	-8.7	6.4	-3.9	16.5	8.7
SCVL	16.7	19.1	35.4	5.8	11.9	5.4	15.9	24.5	27.8	18.2
SCCO	18.4	12.1	28.7	1.7	12.2	-3.4	6.2	5.1	17.3	11.9
SCGR	16.5	10.4	23.3	-12	1.4	-12.3	6.8	0.8	18.6	5.9
UK	25.5	27.2	18.1	-8.9	26.2	-2.4	24.7	19.4	24.8	15.9
JAPN	16.1	12.9	27.5	-2.2	-0.9	-7.6	5.7	6.5	32.7	12
CANA	21.9	21.4	31.5	-16.8	7.7	2.8	29.2	22.4	13.4	8.2

AUST	36.4	40.1	47.1	-11.2	36.8	-4.3	12.8	42.9	45.2	24.4
APXJ	13.3	12.2	43.1	-4	9.3	-1.3	5.4	20.2	24	13.2
EURO	27.9	14.9	36.4	9.7	15.4	1.2	14.5	-0.1	10.7	14.5
EMRG	20.1	6.9	9.4	-2.7	7.6	0.5	-2.3	9	10.8	6.4
LATN	17.4	2.1	12.3	-1.4	12.5	-28.1	20.7	-1.3	13.1	6
OTHR	8.5	8	8.8	-9.2	2.7	7.2	17.5	36.5	32.8	12.7
TOTL	21.6	13.8	29.7	-3.6	8.8	-0.5	10.6	10.8	20.3	11.6

	UK	JAPN	CANA	AUST	APXJ	EURO	EMRG	LATN	OTHR	TOTL
LGVL	17.3	14.6	8.6	37.9	14.1	10.7	1.3	2	34.9	13.2
LGCO	17.2	2.1	10.8	26.7	8.9	22.8	1.1	-0.1	5.3	13.3
LGGR	10.3	14.7	0.5	-2.1	11.5	16.2	18.5	2.6	4	11.6
MDVL	19.6	15.5	5.3	23.4	14.8	13.1	13.5	14.1	15.5	15.5
MDCO	32.8	6.4	15.8	20.7	9	14.1	0	21.4	15.2	12.4
MDGR	16.9	10.3	3.7	1.9	12.6	14.5	1.3	6.2	3.1	8.7
SCVL	23.3	17.2	7	32.6	20.3	13.7	14.2	12.1	21.6	18.2
SCCO	23.4	9.7	4.2	17.8	17.3	8.5	2.6	8.4	18.7	11.9
SCGR	1.6	15.7	-11.1	-18.7	14.2	-3.4	-4	-1	7.8	5.9
TOTL	15.9	12	8.2	24.4	13.2	14.5	6.4	6	12.7	11.6

U.S. Heat Map for the Year Ending March 31, 2013

	STAP	DISC	HLTH	MATL	TECH	ENER	INDU	UTEL	FINC	TOTL
LGVL	20.4	21	26.4	1.7	-13.5	9.6	15.8	16.1	11.8	12.9
LGCO	17.9	22.9	24.4	-6.1	-10.4	6.7	11	22.4	30.4	13.4
LGGR	15.8	20	31.2	4.8	5.1	8.7	18	11.2	17.4	11.7
MDVL	25.6	20.6	19	8.5	11.3	16.1	25.6	17.4	21.4	19.6
MDCO	39.1	16.8	12.8	23	1.7	15.6	15.1	14.8	21.3	17.1
MDGR	0.9	10.5	21.7	-11.1	1.1	6.2	23.5	28.8	14.1	9.8
SCVL	17.6	18.6	23.8	15.5	5.8	10.5	29.7	19.8	21.1	19.2
SCCO	33.8	10.6	31.1	-4	9.5	13.6	18	-24.7	24.6	15.7
SCGR	-5.6	19.1	15.9	-19.1	-1.7	-14.1	17.7	10.4	36.2	7.5
TOTL	20.1	17.9	24.8	2.7	-0.4	9.4	17.9	19.8	17.9	13.5

Appendix: Articles on Momentum Investing

- Sapp, Travis and Tiwari, Ashish. *Does Stock Return Momentum Explain the “Smart Money” Effect?* Article first published online: 27 Nov 2005 [Link2](#)
- Wikipedia. *Momentum Investing* [Link3](#)
- George, Thomas and Hwang, Chuan-Yang. *The 52-Week High and Momentum Investing*. The Journal of Finance • vol. lix, no. 5 • October 2004 [Link1](#)

Disclaimer: Past performance is not an indicator of future performance, but it can be a clue.