

Portfolio Management of High Growth Firms and Technical Buy Points

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This paper shows that current earnings and prices at or near new highs can be combined with the Average Directional Index (DM) technical indicator to generate excess return in the market. Excess returns are statistically significant via difference in means tests (robust to recession only periods, and additional timeframes) and CAPM, Fama and French 3 and 5 factor models. The model is robust to alternate weight specification and has consistent results across multiple start dates. The system is replicable and has a win rate of 63% turning \$100,000 into \$33,000,000. It is constructed without lookahead bias.

Keywords: investing strategies, finance, can slim, fundamental analysis, technical analysis

INTRODUCTION

This portfolio takes stocks that are rated highest on current earnings and then new highs. The ranking criterion are summarized in the main body of the text.

Transaction costs and slippage are accounted for. We do difference in mean testing for the portfolio when compared with the SP500. We also break the holding periods into recession periods and test difference in means. Further we discuss different start dates with a common end date for the two portfolios. Analyzing 1999-2017, 2005-2017, 2010-2017, and 2014-2017.

There are alternate ways to model the CAN SLIM portfolio. Such alterations when focusing on just the C - N are shown in back tested portfolios.

The rules are that the DMI (8,3) and (14,2) hold to account for short and intermediate term trends. The ranking system then is 85 percent weight to earnings grow versus the same quarter one year prior within the universe, and small 5 percent weight in each of three criteria, institutional ownership in the industry, three year earnings growth, and three year industry earnings growth. Thus stocks that pass the technical filter are ranked and formed in a portfolio. Using the same portfolio system as previous papers and a 7% stop loss.

This paper combines the world of technical analysis with the CANSLIM system, which has been previously studied (see Lutey et al. 2013, 2014, and 2018). The point here is to overweight current earnings when building a portfolio, but buying only stocks that meet a technical trend following direction (to avoid buying losing stocks or trying to catch a falling knife). This is in line with the CAN SLIM system.

The model is robust to other specifications such as 45 percent weight to earnings growth versus the same quarter one year prior, 35 percent weight to the three year average, 10 percent to institutional sponsorship versus the prior quarter. Small industry weights of 5 percent to both institutional sponsorship within the industry and earnings growth three year average.

LITERATURE REVIEW

Studies of momentum strategies with stocks that have successful price performances include Jegadeesh and Titman (1993), who determined that abnormal returns were temporary and dissipated in the following years. They revisited the momentum strategy in 2001 and found that the 1993 strategy that resulted in abnormal profits following the companies' successful performances continued into the 2000s. Jegadeesh and Titman incorporated current earnings as a buy rule for stocks.

As the CANSLIM strategy attracted more attention in the rising stock market of 2002-2008, research in the U.S. (see Lutey et al.) and international researchers investigated the utilization of the investment strategy. Jain, Bangur, and Sharma (2011) determined that the CANSLIM method had successful applications for the stock selection of banks in India. Najafi and Farshid (2013) conducted a CANSLIM analysis of stocks in the Tehran Stock Exchange and confirmed their hypothesis that the strategy can identify leading stocks.

The examination of CANSLIM combined with technical indicators, is a natural extension of the research, since O'Neil himself refers to technical indicators, such as the "Cup and Handle" formation in the usage of the strategy in *Investors Business Daily* (Investors.com). In this article, the authors introduce the DMI indicator as a filter combined with the CANSLIM method. Suh and Gao (2004) combine the CANSLIM strategy with a "Backward Screening Pattern Recognition Algorithm" to identify the "Cup with Handle" patterns that O'Neil supports.

Nicholas (2009) combined the CANSLIM strategy to select stocks for a portfolio selected upon a 20 bar breakout strategy and then used technical strategies to exit the positions. A money management stop produced the most successful CANSLIM output.

Belin and Petrov (2008) produced a study utilizing the CANSLIM strategy with five different technical strategies to enhance the performance of the CANSLIM. Their technical combinations included the Donchian Channel, the Keltner Channel, Bollinger Bands, Moving Average Crossovers, and Volume Breakouts. They determined the Moving Average Crossover added the most improvement to the CANSLIM compared to the other technical signals.

Mihnea, Myo and Yar (2013) used the CANSLIM as a filter in their study of automating trading systems. Their study is rather ambitious for the scope of technical indicators they attempt to incorporate into their study. Their results are promising and the article is educational, although the authors encountered some technical, coding and computational problems.

Our article extends this research into the incorporation of the ADX (Average Directional Indicator) which is a synonym for the DMI (Directional Market Indicator). This technical indicator was created by Wells Wilder in 1978 and is widely used by portfolio managers around the globe. The CANSLIM method was first described by William O'neil and Gil Morales in the book, *How to Make Money Selling Stocks Short* in 2004.

DATA/METHODOLOGY

Compustat Snapshot Point in Time Data is used from 1999-2017. This paper was constructed first in 2015 with a 1999 start date. It was then updated two years later by re running the system with the same weights with a 1999 start date and 2017 end date. The goal was to see if the results fell apart after the initial study (in 2015).

A ranking system (outlined in the next section) is used to pick stocks based on weights around their fundamental characteristics.

Fundamental investment strategies ignore any market timing. This paper adds in a market timing tool of using the ADX which is shown in technical analysis literature to detect trend direction. The rule is as follows:

1. Buy stocks with a high emphasis on current earnings growth.
2. Buy stocks close to new highs

Additional weighting criteria were used to place additional emphasis on long term earnings growth and show similar promising results.

The ranking system used in this paper takes all listed stocks and sorts them based on their highest weighted values first. E.g. a 90% weight in current earnings would sort stocks based on current earnings, then do a secondary sort on the remaining weights. Then the top positions are picked for the portfolio. These are live implementable results. Without any lookahead bias.

The portfolio system and data are obtained from portfolio123.com. The reason we use this is because it allows us to access Compustat Snapshot Point in time Data for a monthly fee.

RESULTS

**TABLE 1
SUMMARY STATISTICS**

Variable	Obs	Mean	Std. Dev.	Min	Max
Model	220	.0411	.1959	-.4928	1.86
SP 500	220	.0039	.0423	-.1694	.1077

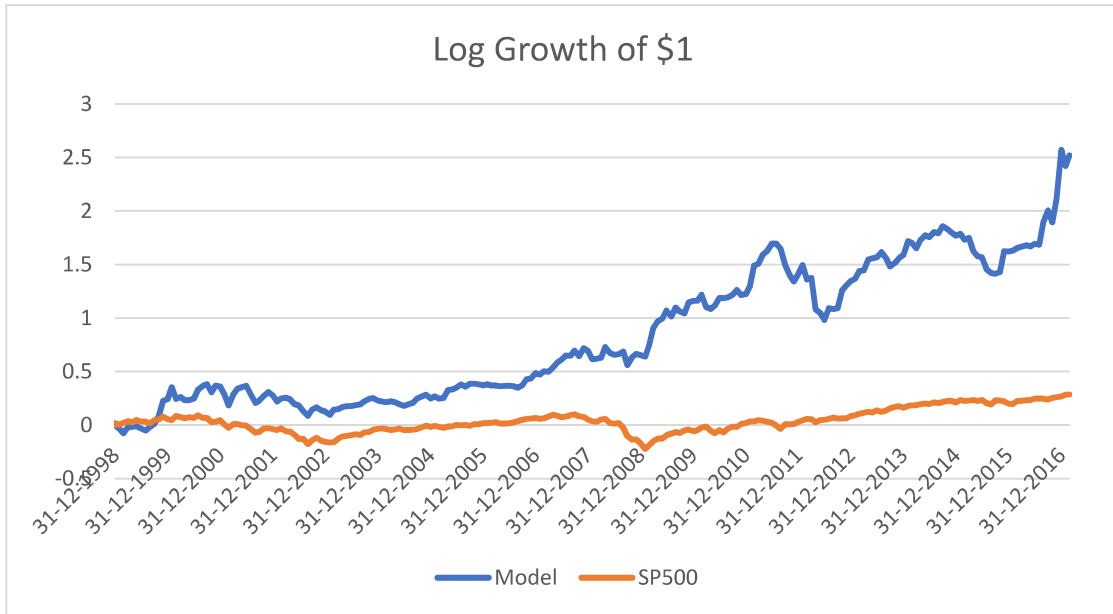
**TABLE 2
DIFFERENCE IN MEAN TESTING**

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T<t) = 0.9979	Pr(T > t) = 0.0043	Pr(T>t) = 0.0021

t=2.8873

degrees of freedom = 219

**FIGURE 1
GROWTH OF \$1 INVESTMENT**



Analyzing different holding periods of 1999-2017, 2005-2017, 2010-2017, and 2014-2017. We can compare test statistics for the returns in compared to the buy and hold. This is done in the table below:

**TABLE 3
DIFFERENCE IN MEAN TESTING OVER MULTIPLE TIME FRAMES**

Time Period	Ha: mean(diff) <0	Ha: mean(diff) !=0	Ha: mean(diff) >0	Test statistic	Degrees of Freedom
2005-2017	Pr(T<t) = 0.9956	Pr(T > t) = 0.0088	Pr(T>t) = 0.0044	2.6571	147
2010-2017	Pr(T<t) = 0.9712	Pr(T > t) = 0.0575	Pr(T>t) = 0.0288	1.9247	87
2014-2017	Pr(T<t) = 0.9422	Pr(T > t) = 0.1157	Pr(T>t) = 0.0578	1.6091	39

This system was employed twice. The most recent version ending in 2017 which is analyzed in this paper. The first version ended in 2015. We waited two years to validate the model to make sure it wouldn't fall apart when the time period ended.

The risk metrics are summarized next to the graphs for each stock. They can be extended to include additional metrics such as beta. These are in the appendix.

The holdings are also shown for each strategy. There is not a lot as it is overweighting small cap stocks with the highest earnings growth. The idea is to get in at an early stage.

Since the strategy fares well upon reconstruction and again at a later date (i.e., it does not hold out data when creating an out of sample test. It waits a full two years) it is worth noticing. If it fell apart or had different returns two years later it may be a bust model but it is powerful. It may be useful for including in an investment fund or speculative sleeve. Again this is not investment advice just interpreting different variations of current earnings weights on a back-tested model. The data is survivor-bias free as it is showing only companies available at a point in time.

**FIGURE 2
RISK MEASUREMENTS**

Risk Measurements / Trailing 3 Year

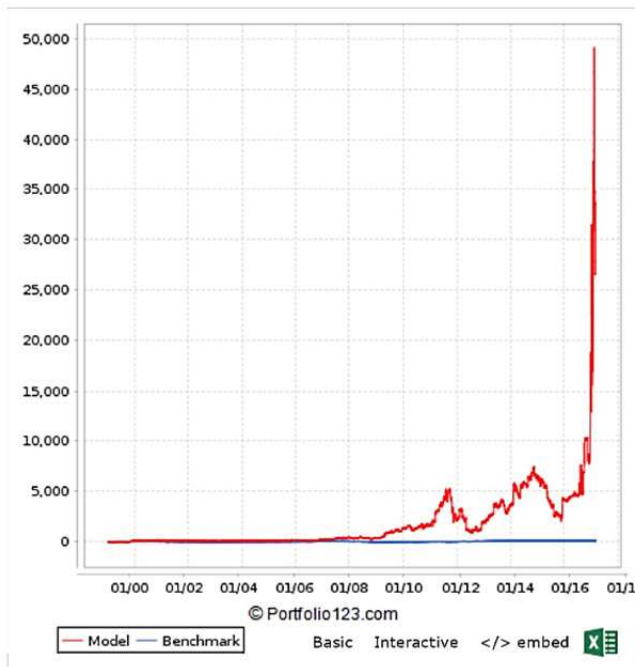
	Model	S&P 500
Total Return (%)	555.06	26.11
Annualized Return (%)	86.98	8.03
Max Drawdown (%)	-71.97	-14.16
Monthly Samples	35	35
Standard Deviation (%)	130.87	10.50
Sharpe Ratio	0.82	0.80
Sortino Ratio	2.03	1.15
Correlation with Benchmark	0.07	-
R-Squared	0.01	-
Beta	0.92	-
Alpha (%) (annualized)	161.42	-

Risk Measurements / Inception 01/02/99

	Model	S&P 500
Total Return (%)	33,002.51	92.67
Annualized Return (%)	37.60	3.67
Max Drawdown (%)	-82.57	-56.78
Monthly Samples	218	218
Standard Deviation (%)	67.97	14.74
Sharpe Ratio	0.68	0.20
Sortino Ratio	1.34	0.26
Correlation with Benchmark	0.23	-
R-Squared	0.05	-
Beta	1.04	-
Alpha (%) (annualized)	53.30	-

To make sure it was not a fluke and would blow up after completion we waited two years and ran the model again. The results are shown below.

**FIGURE 3
1999-2017 RESULTS**



General Info

Total Market Value (inc. Cash)	\$ 33,103,983.10
Cash	\$ 13,584.22
Number of Positions	11
Last Trades (2)	10/17/16
Period	01/02/99 - 03/08/17
Last Rebalance	03/06/17
Rebalance Frequency	4 Weeks
Benchmark	S&P 500
Universe	All Fundamentals - USA
Ranking System	Universe

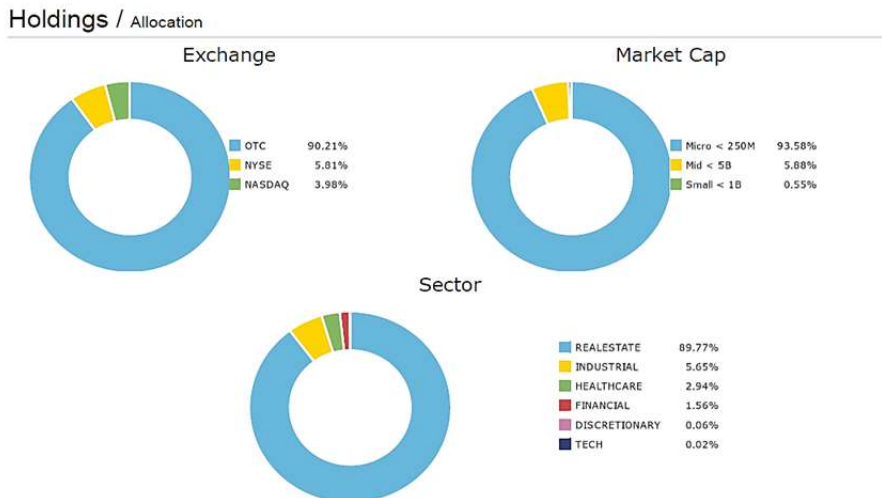
Quick Stats as of 3/8/2017

Total Return	33,002.51%
Benchmark Return	92.67%
Active Return	32,909.84%
Annualized Return	37.60%
Annual Turnover	9.08%
Max Drawdown	-82.57%
Benchmark Max Drawdown	-56.78%
Overall Winners	(17/27) 62.96%
Sharpe Ratio	0.68
Correlation with S&P 500	0.23

This model highlights the similar maximum drawdown and a lower Sharpe ratio and a lower correlation with the S&P 500. It is the same model just extended two years. It has \$26M + increase in market value however over the two year period. The system started in 1999 and was tested until 2015. It

was not included in previous versions of CAN SLIM method but since it did hold out of sample it is worth including.

**FIGURE 4
HOLDINGS AND ALLOCATION**



It has many more holdings over the two year extension. It also boasts a 62.96% win rate. These would be useful systems when plugged in to a brokerage platform with a speculative sleeve of an investors account. The backtesting models mimic what an investor could expect to earn when using API plugins for making investment decisions. Application Programming Interface (API) plugins feed a program trading strategy into a brokerage account such as Interactive Brokers.

We include this one because it is the most extravagant growth system shown. It is unique that it buys over the counter stocks and over weights them. The weighting system is shown also in the appendix.

This system turns \$100,000 in to \$33M. This buys micro cap stocks at a high weight along with financial stocks. Primarily in the over the counter real-estate market.

We analyze excess returns over the risk-free rate of return using Fama and French, 3 and 5 factor models, and the Capital Asset Pricing Model (CAPM).

Fama and French Portfolios

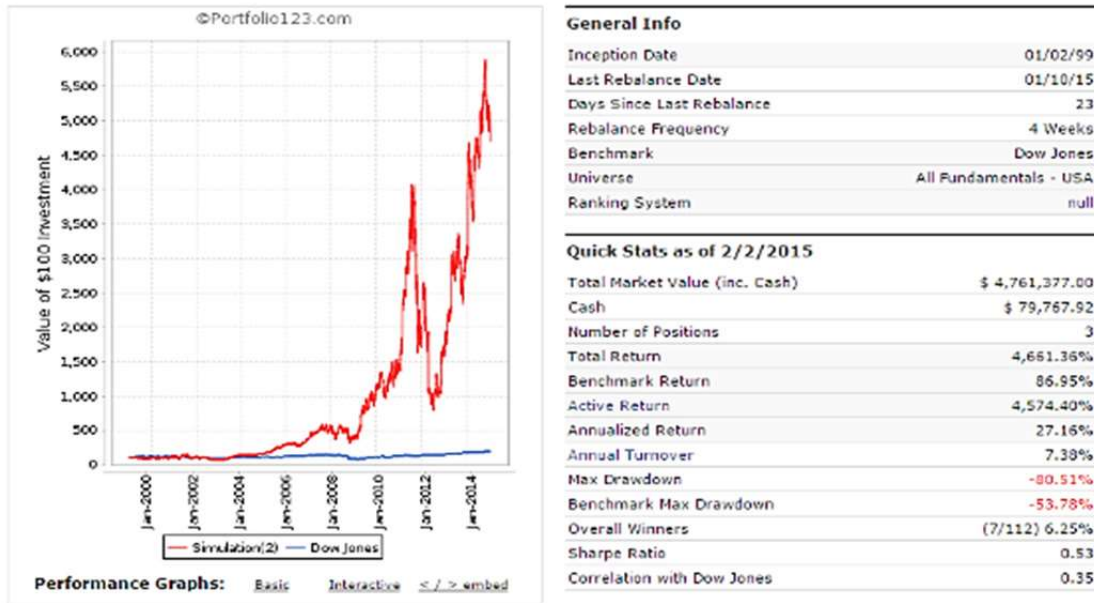
We form Fama and French and CAPM portfolios on the original data set for the time frames 1999-2017, 2005-2017, 2010-2017, 2014-2017. The regression results are shown below.

$$CanSlim(CN) - Rf = \alpha + \beta(Rm - rf) + \beta_1(SMB) + \beta_2(HML) + \beta_3(RMW) + \beta_4(CMA) \quad (1)$$

TABLE 4
CAPM AND FACTOR MODEL OUTPUT

1999-2017	Alpha	B MktRF	B1 SMB	B2 HML	B3 RMW	B4 CMA
CAPM	0.0327 (0.015)	0.0084 (0.402)				
3 Factor	0.0311 (0.023)	0.0088 (0.370)	-0.0108 (0.577)	0.0074 (0.713)		
5 Factor	0.0299 (0.030)	0.0095 (0.375)	-0.0101 (0.633)	-0.0053 (0.820)	-0.0109 (0.709)	0.0506 (0.182)
2005-2017	Alpha	B MktRF	B1 SMB	B2 HML	B3 RMW	B4 CMA
CAPM	0.0488 (0.010)	0.0049 (0.703)				
3 Factor	0.0487 (0.012)	0.0003 (0.985)	0.0026 (0.941)	0.0221 (0.486)		
5 Factor	0.0423 (0.033)	0.0086 (0.611)	-0.0045 (0.898)	0.0047 (0.894)	0.0188 (0.764)	0.1158 (0.091)
2010-2017	Alpha	B MktRF	B1 SMB	B2 HML	B3 RMW	B4 CMA
CAPM	0.0632 (0.037)	0.0158 (0.518)				
3 Factor	0.0600 (0.060)	0.0054 (0.858)	-0.0124 (0.830)	0.0926 (0.140)		
5 Factor	0.0598 (0.065)	0.0034 (0.920)	-0.0148 (0.806)	0.0878 (0.246)	-0.0180 (0.882)	0.0106 (0.937)
2014-2017	Alpha	B MktRF	B1 SMB	B2 HML	B3 RMW	B4 CMA
CAPM	0.0968 (1.70)	0.0323 (0.56)				
3 Factor	0.0948 (0.120)	0.0385 (0.514)	-0.0015 (0.991)			
5 Factor	0.0868 (0.116)	0.0523 (0.430)	-0.0405 (0.774)	0.0730 (0.640)	-0.0655 (0.783)	0.2828 (0.341)

**FIGURE 5
1999-2015 RESULTS**



This is the same ranking system ran in real time ending in 2015. It was constructed separately from the above model but with the same weighting criteria. The results are similar but the models have different holdings. The models both benefit from the inclusion of Green Mountain Coffee Roasters (GMCR) in an early stage. The model is also evaluated to 2017.

It is interesting that the model still fairs well with the original set of weights and two years later. The model is included for validity that it wasn't an anomaly. Each of the holdings can be analyzed.

**FIGURE 6
HOLDINGS**

Top Holdings					
No	Ticker	Weight	Return	Shares	Value
1	GMCR [50] [1Y]	90.40%	46,063.05%	35,046.0	\$4,295,237.50
2	MIDD [50] [1Y]	7.44%	5,268.93%	3,720.0	\$353,474.38
3	SYX [50] [1Y]	0.69%	128.00%	2,517.0	\$32,897.19

[view all](#)

Last 10 Trades					
Date	Type	Ticker	Shares	Price	
01/30/15	DIV	GMCR [50] [1Y]	0.0	\$0.00	
10/31/14	DIV	GMCR [50] [1Y]	0.0	\$0.00	
08/01/14	DIV	GMCR [50] [1Y]	0.0	\$0.00	
06/27/14	SPLIT	MIDD [50] [1Y]	2,480.0	\$0.00	
05/02/14	DIV	GMCR [50] [1Y]	0.0	\$0.00	
02/14/14	DIV	GMCR [50] [1Y]	0.0	\$0.00	
10/31/13	SELL	NIHQ [50] [1Y]	-1,434.0	\$3.96	
12/21/12	DIV	SYX [50] [1Y]	0.0	\$0.00	
05/18/10	SPLIT	GMCR [50] [1Y]	23,364.0	\$0.00	
12/15/09	DIV	SYX [50] [1Y]	0.0	\$0.00	

[view all](#)

This shows the original model with GMCR at a 90% weight and huge return. The other positions are mostly losing positions. The later model shows more trades and only one holding (GMCR). It benefits from picking up micro cap stocks before they are made famous. That is part of the CAN SLIM model methodology.

We ran the model a second time, two years later and got the same results. It was well checked.

It is analyzed for holdings and then extended to the current date of 2017. The results for both models are analyzed. This shows the CANSLIM system combined with technical directional index cross over using all U.S. listed stocks including OTC stocks. It benefits from buying two OTC stocks early in their career. One is GMCR (Green Mountain Coffee Roasters) the other it is still holding. It has a lot of volatility but we can see when it is originally written (1999-2015) it still produces similar volatile but excessive returns.

**FIGURE 7
RISK MEASUREMENTS 1999-2015**

Risk Measurements / Trailing 3 Year			Risk Measurements / Inception 01/02/99		
	Model	S&P 500		Model	S&P 500
Total Return (%)	98.24	54.19	Total Return (%)	5,973.50	68.50
Annualized Return (%)	25.59	15.51	Annualized Return (%)	28.90	3.28
Max Drawdown (%)	-72.72	-9.94	Max Drawdown (%)	-83.94	-56.78
Monthly Samples	35	35	Monthly Samples	194	194
Standard Deviation (%)	61.03	9.54	Standard Deviation (%)	47.40	15.13
Sharpe Ratio	0.89	1.49	Sharpe Ratio	0.73	0.16
Sortino Ratio	1.25	1.92	Sortino Ratio	1.10	0.22
Correlation with Benchmark	0.34	-	Correlation with Benchmark	0.27	-
R-Squared	0.11	-	R-Squared	0.07	-
Beta	2.15	-	Beta	0.85	-
Alpha (%) (annualized)	26.14	-	Alpha (%) (annualized)	37.69	-

This shows excess risk of course but also excess return. The risk statistics are not included but most are summarized in the table above. The system is updated in 2017 to see if it fell apart after two years. The results are shown below. It is similar to this however it is much more exponential.

The original model (top) takes more trades than the recent model. It appears from the win ratio that many of the trades are losing trades and it overweights stocks that better meet the criteria. The later model is analyzed below. It is more parabolic. It adds PDNLB an over the counter real-estate company.

CONCLUSION

This paper shows that current earnings and prices at or near new highs can be combined with technical analysis to generate excess return in the market. This is evidenced by difference in means tests (robust to recession only periods, and additional timeframes) and CAPM, Fama and French 3 and 5 factor models. The results hold with different weighting applications. None of the results are optimized. We waited two years to validate our model on new data and the results still held. The results are daily returns rebalanced every four weeks. This model shows that holding portfolios sorted on current earnings near new highs may have substantial returns.

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