LSEG StarMine

StarMine® combination model performance in down markets

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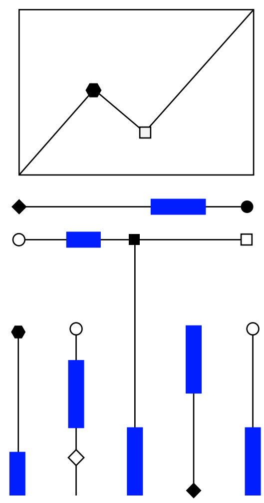
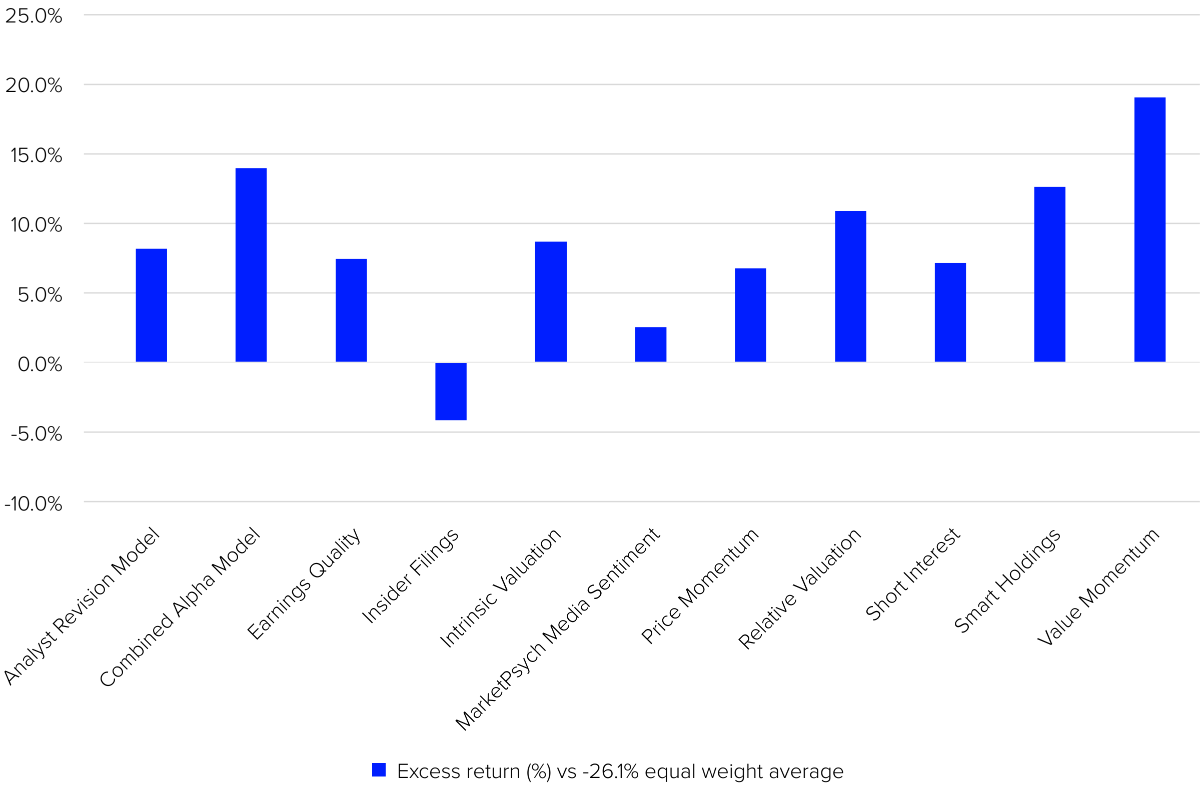
The recent volatility in the equity markets might cause investors whiplash if their portfolios are overly tilted to either value or momentum. In any month, value or momentum stocks can be in or out of favour. Since this can persist for multiple months or change month to month, predicting which factors will perform best in the short term is not practical. A longer-term view reveals the benefits of factor diversification in generating relative excess returns. The negative historical correlations between value and momentum factors and low or negative correlations among other selection factors can smooth out returns when they are combined.



This smoothing effect can be seen in the recent market environment. Despite the broad declines in US equities this year, StarMine's® combination models Value Momentum and Combined Alpha have held up well. In fact, they have followed up strong results from 2021 and been the best performing StarMine models this year to date. Through September 2022, the top decile of the Value Momentum and Combined Alpha models have had comparative excess returns of 19.1% and 14.0% respectively over the equal-weighted average price change for of the overall universe of -26.1%.

Top decile excess return (YTD through September 2022) – US



This resilience of combination models in down markets is not a recent phenomenon. The benefit of factor diversification shows in the performance of the combination model Value Momentum. A review of the top decile average returns for Value Momentum from July 2016 to September 2022 shows its enhanced effectiveness during negative markets.

Of the 75 months since July 2016, 28 had negative overall universe equal-weighted average price changes. During those negative months, the Value Momentum model produced positive top decile excess returns vs the overall market 57% of the time. This is slightly higher than the average outperformance rate of the top decile of this model for all months. However, the Value Momentum model distinguishes itself by its effectiveness at ranking stock performance in those down months. It produced a positive top-bottom decile spread in over 60% of the months compared to about 47% in all months. This ranking improvement extends beyond the top-bottom decile spread, shown by the average information coefficient (IC) in down months of .05 compared to .033 for all months. When looking at the models that are inputs to the Value Momentum model, one can see that the Price Momentum model contributed the largest boost in percentages of months and positive differences of top decile excess return and top-bottom spread. Indeed, Price Momentum shows remarkable effectiveness in down months with positive top decile excess return and top-bottom decile spreads of 10.1% and 56.5% respectively. Analyst Revision Model also contributes to performance in down months, particularly in its effectiveness in top-bottom decile spread. When looking at risk-adjusted performance, the Value Momentum model compares favourably to most models for top-bottom decile spread. Except for the Analyst Revision Model for top decile and top-bottom decile spread performance, it has a higher Sharpe ratio than its input models. However, the higher IC for Value Momentum indicates it is the better model for sorting relative performance of stocks falling between the top and bottom deciles in all months.

Percentage of months with positive top decile excess returns and top-bottom decile spreads in market down months vs all months – US (July 2016 to September 2022)

	% Positive top decile excess return		% Positive top-bottom spread	
	Market down months	All months	Market down months	All months
Value Momentum	57.1%	56.0%	60.7%	46.7%
Price Momentum	82.1%	57.3%	85.7%	58.7%
Analyst Revision Model	60.7%	58.7%	85.7%	66.7%
Relative Valuation	39.3%	49.3%	53.6%	53.3%
Intrinsic Valuation	32.1%	48.0%	32.1%	46.7%

Annualised top decile excess return vs equal-weight universe and top-bottom decile return spreads in down months and all months – US (July 2016 to September 2022)

	Top decile			Top-bottom decile			Average IC	
	Excess return in market down months	Excess return in all months	Sharpe ratio all months	Spread in market down months	Spread in all months	Sharpe ratio all months	Market down months	All months
Value Momentum	2.1%	3.6%	0.57	25.8%	8.1%	0.47	0.050	0.033
Price Momentum	10.1%	3.8%	0.63	56.5%	3.8%	0.29	0.099	0.013
Analyst Revision Model	4.1%	8.1%	0.75	35.1%	11.1%	0.90	0.062	0.025
Relative Valuation	-5.4%	1.3%	0.46	5.3%	6.8%	0.37	0.024	0.035
Intrinsic Valuation	-6.3%	1.4%	0.47	-20.4%	-0.4%	0.08	-0.061	0.003

StarMine Combined Alpha Model incorporates additional factors in the US to those used in Value Momentum that provide further improvement to performance during negative market months.

During the period studied, Combined Alpha Model had positive top decile excess returns versus the equal-weight universe in more than 60% of the down months in the market. It was also highly effective at differentiating returns in those months, producing positive top-bottom decile spreads 64% of the time and an average IC of .061. The inclusion of Short Interest, Smart Holdings and Earnings Quality in the Combined Alpha Model are additive to down month performance. Each of those factors generates top decile excess returns and positive top-bottom decile spreads in a high proportion of negative months. In addition, the annualised excess returns and decile spreads are significantly higher than their respective returns in all months.

The observation that the StarMine Short Interest model is additive to returns of Combined Alpha in negative months makes intuitive sense. In negative overall markets this signal of the activity of short sellers tends to be amplified by further selling of stocks perceived as underperformers by the level of short interest. The performance of another smart money signal, StarMine's Smart Holdings Model, suggests that the investor preferences predicted by these types of models is effective in getting ahead of stock declines.

Earnings Quality has previously been identified as a haven for investors during market downturns. Evidence for Tilting Portfolios Toward Quality During Market Downturns (StarMine Research Team, 2018) noted that top decile portfolios based on earnings quality significantly outperformed the equal-weighted universe of stocks during four extended market declines between March 2000 and February 2016. While highly effective in capturing the "flight to quality" effect over an extended decline, StarMine Earnings Quality also performs well during short-term declines.

Insider Filings was a drag to the performance of Combined Alpha in down months. Although Insider Filings has low correlation to other StarMine signals, it has its highest correlation with Intrinsic Value and Relative Value. Indeed, one might posit that insiders tend to be value investors and make purchases of their company stock during down periods. (How Insider Behaviour Can Predict Future Stock Performance. Even Post-SOX. StarMine Insider Filings Model US, Genin et al 2013). As is the case with Relative Valuation and Intrinsic Valuation, Insider Filings does a poor job of picking the top relative performing stocks in down months. In the same periods, like Intrinsic Valuation, it also fails to differentiate the top and bottom decile performance.

Percentage of months with positive top decile excess returns and top-bottom decile spreads in market down months vs all months – US (July 2016 to September 2022)

	% Positive top decile excess return		% Positive top-bottom spread	
	Market down months	All months	Market down months	All months
Combined Alpha	60.7%	53.3%	64.3%	56.0%
Price Momentum	82.1%	57.3%	85.7%	56.0%
Analyst Revision Model	60.7%	58.7%	85.7%	66.7%
Relative Valuation	39.3%	49.3%	53.6%	53.3%
Intrinsic Valuation	32.1%	48.0%	32.1%	46.7%
Short Interest	78.6%	52.0%	82.1%	56.0%
Smart Holdings	67.9%	50.7%	71.4%	57.3%
Earnings Quality	78.6%	62.7%	71.4%	54.7%
Insider Filings	25.0%	49.3%	32.1%	54.7%

Annualised top decile excess return vs. equal-weight universe and top-bottom decile return spreads in down months and all months – US (July 2016 to September 2022)

	Top decile			Top-bottom decile			Average IC	
	Excess return in market down months	Excess return in all months	Sharpe ratio all months	Spread in market down months	Spread in all months	Sharpe ratio all months	Market down months	All months
Combined Alpha	5.4%	5.4%	0.67	36.9%	10.0%	0.56	0.061	0.041
Price Momentum	10.1%	3.8%	0.63	56.5%	3.8%	0.29	0.099	0.013
Analyst Revision Model	4.1%	8.1%	0.75	35.1%	11.1%	0.90	0.062	0.025
Relative Valuation	-5.4%	1.3%	0.46	5.3%	6.8%	0.37	0.024	0.035
Intrinsic Valuation	-6.3%	1.4%	0.47	-20.4%	-0.4%	0.08	-0.061	0.003
Short Interest	9.1%	-0.2%	0.50	58.6%	0.7%	0.15	0.111	0.036
Smart Holdings	7.4%	0.7%	0.53	38.4%	4.7%	0.36	0.096	0.037
Earnings Quality	7.0%	5.8%	0.72	29.1%	7.1%	0.58	0.058	0.027
Insider Filings	-6.3%	-2.4%	0.35	-13.1%	-0.8%	-0.04	-0.022	-0.004

Global ex-US results

Although combination models have exhibited strong average results in Emerging Markets over all months, they also showed improvement in down market months. Both the Combined Alpha and the Value Momentum models had positive top decile excess returns and top-bottom decile spreads in 86% of the down months for the market. Notably, nearly all their input models also performed better during down months. The Analyst Revision Model was the lone exception. However, on average it outperformed in a high percentage of overall months. Likewise, the already strong top decile excess returns and top-bottom decile spreads for the Combined Alpha and Value Momentum models were even better in down market months. Price Momentum and Relative Valuation returns in down months helped improve both Combined Alpha and Value Momentum. Inclusion of the Smart Holdings and Earnings Quality components had a positive impact on Combined Alpha outperformance during down market months.

Percentage of months with positive top decile excess returns and top-bottom decile spreads in market down months vs all months – Emerging Markets (July 2016 to September 2022)

	% Positive top decile excess return		% Positive top-bottom spread	
	Market down months	All months	Market down months	All months
Combined Alpha	86.2%	69.3%	86.2%	72.0%
Value Momentum	86.2%	72.0%	86.2%	70.7%
Price Momentum	86.2%	69.3%	75.9%	69.3%
Analyst Revision Model	51.7%	66.7%	75.9%	76.0%
Relative Valuation	75.9%	58.7%	72.4%	56.0%
Intrinsic Valuation	65.5%	54.7%	51.7%	52.0%
Smart Holdings	69.0%	57.3%	72.4%	62.7%
Earnings Quality	72.4%	65.3%	82.8%	68.0%

Annualised top decile excess return vs. equal-weight universe and top-bottom decile return spreads in down months and all months – Emerging Markets (July 2016 to September 2022)

	Top decile			Top-bottom decile			Average IC	
	Excess return in market down months	Excess return in all months	Sharpe ratio all months	Spread in market down months	Spread in all months	Sharpe ratio all months	Market down months	All months
Combined Alpha	14.6%	14.4%	1.41	40.9%	26.3%	1.76	0.094	0.064
Value Momentum	15.5%	13.3%	1.35	40.4%	25.4%	1.64	0.103	0.061
Price Momentum	14.8%	12.1%	1.20	30.5%	17.0%	1.01	0.078	0.040
Analyst Revision Model	0.9%	10.3%	0.98	10.5%	19.3%	1.68	0.028	0.038
Relative Valuation	13.5%	7.3%	0.94	30.4%	10.2%	0.56	0.099	0.049
Intrinsic Valuation	8.3%	5.1%	0.80	15.2%	7.0%	0.45	0.064	0.040
Smart Holdings	4.5%	3.8%	0.76	17.2%	12.2%	1.25	0.064	0.047
Earnings Quality	5.4%	5.6%	0.91	25.4%	12.0%	1.14	0.075	0.040

In Developed Europe, Combined Alpha and Value Momentum exhibited positive return spreads in a high percentage of all months in the period studied. During down market months the Value Momentum model outperformed in a greater percentage of months on a top decile excess return and top-bottom spread basis. Combined Alpha showed an improvement in the percentage of average top-bottom spread months during down markets compared to all months. Top-bottom decile spread performance was higher for both combination models during down market months, driven by the robust performance contribution of price momentum during those periods.

Percentage of months with positive top decile excess returns and top-bottom decile spreads in market down months vs all months – Developed Europe (July 2016 to September 2022)

	% Positive top decile excess return		% Positive top-bottom spread	
	Market down months	All months	Market down months	All months
Combined Alpha	57.7%	65.3%	84.6%	76.0%
Value Momentum	61.5%	53.3%	73.1%	68.0%
Price Momentum	69.2%	65.3%	73.1%	62.7%
Analyst Revision Model	61.5%	64.0%	76.9%	73.3%
Relative Valuation	50.0%	53.3%	65.4%	56.0%
Intrinsic Valuation	53.8%	53.3%	50.0%	48.0%
Smart Holdings	76.9%	64.0%	80.8%	68.0%
Earnings Quality	53.8%	61.3%	53.8%	65.3%

Annualised top decile excess return vs. equal-weight universe and top-bottom decile return spreads in down months and all months – Developed Europe (July 2016 to September 2022)

	Top decile			Top-bottom decile			Average IC	
	Excess return in market down months	Excess return in all months	Sharpe ratio all months	Spread in market down months	Spread in all months	Sharpe ratio all months	Market down months	All months
Combined Alpha	4.8%	6.3%	0.79	23.0%	16.2%	1.41	0.053	0.046
Value Momentum	6.3%	6.7%	0.76	22.7%	14.1%	1.18	0.059	0.038
Price Momentum	12.4%	8.9%	1.04	37.9%	10.5%	0.70	0.095	0.038
Analyst Revision Model	3.9%	6.8%	0.79	18.0%	13.0%	1.47	0.042	0.033
Relative Valuation	1.6%	3.7%	0.55	9.8%	5.7%	0.41	0.018	0.017
Intrinsic Valuation	1.0%	3.2%	0.53	-2.0%	0.3%	0.10	-0.009	0.004
Smart Holdings	5.9%	4.1%	0.70	20.1%	9.2%	0.86	0.045	0.037
Earnings Quality	-0.1%	3.3%	0.57	3.3%	6.3%	0.89	-0.004	0.024

The percentage of positive top-decile excess return months and positive top-bottom spreads for Combined Alpha and Value Momentum in Developed Asia ex-Japan had good results over all months. Likewise, average top decile and top-bottom spread returns were strong. Although percentage of outperformance in down market months did not compare as favourably as other regions, performance during the down months was still positive.

Percentage of months with positive top decile excess returns and top-bottom decile spreads in market down months vs all months – Developed Asia ex-Japan (July 2016 to September 2022)

	% Positive top decile excess return		% Positive top-bottom spread	
	Market down months	All months	Market down months	All months
Combined Alpha	63.3%	66.7%	73.3%	73.3%
Value Momentum	56.7%	56.0%	76.7%	73.3%
Price Momentum	63.3%	61.3%	76.7%	72.0%
Analyst Revision Model	66.7%	66.7%	83.3%	77.3%
Relative Valuation	43.3%	56.0%	60.0%	68.0%
Intrinsic Valuation	33.3%	49.3%	36.7%	54.7%
Smart Holdings	66.7%	64.0%	80.0%	77.3%
Earnings Quality	60.0%	60.0%	73.3%	76.0%

Annualised top decile excess return vs. equal-weight universe and top-bottom decile return spreads in down months and all months – Developed Asia ex-Japan (July 2016 to September 2022)

	Top decile			Top-bottom decile			Average IC	
	Excess return in market down months	Excess return in all months	Sharpe ratio all months	Spread in market down months	Spread in all months	Sharpe ratio all months	Market down months	All months
Combined Alpha	7.2%	12.6%	1.06	26.1%	33.9%	2.31	0.054	0.072
Value Momentum	5.4%	10.8%	0.92	21.8%	30.1%	1.83	0.038	0.063
Price Momentum	13.5%	13.2%	1.09	40.6%	28.7%	1.72	0.070	0.054
Analyst Revision Model	5.6%	10.2%	0.90	20.1%	17.4%	1.70	0.039	0.034
Relative Valuation	-2.1%	1.8%	0.40	6.9%	14.9%	0.86	0.018	0.050
Intrinsic Valuation	-6.7%	-0.2%	0.29	-16.9%	-0.8%	0.05	-0.071	-0.017
Smart Holdings	5.8%	6.5%	0.76	20.7%	25.0%	2.35	0.042	0.064
Earnings Quality	3.5%	4.6%	0.63	14.2%	17.0%	1.92	0.046	0.050

Conclusion

Over the past 20 years, the S&P 500 index has posted monthly declines more than a third of the time. Stock selection models that perform well in both rising and declining markets can help investors outperform the market over the long term. Employing the factor diversification offered by StarMine combination models can help investors to ride out volatile markets. For US stocks, the Combined Alpha Model provides the best results due to its inclusion of Short Interest, Smart Holdings and Earnings Quality. These factors, along with Price Momentum and Analyst Revision Model provide a strong counterbalance to value factors in declining markets.

In global markets the factor diversification of combination models also provides benefits. Impressive performance in Emerging Markets for the Combined Alpha and Value Momentum models in all months is enhanced by the results during down market months. The down market outperformance of Intrinsic Value and Relative Value in Emerging Markets contrasts with their performance in US and other regions. In Developed Europe, Price Momentum performance in down months was the main contributor to combination model performance. Developed Asia ex-Japan combination models showed solid performance across all months and the performance of their input models were effective in helping improvement of top-bottom decile spreads during down market months.

For more information, please contact your LSEG representative, StarMine quantitative consulting or the StarMine specialists at starmine.quantconsulting@lseg.com or visit LSEG.com/en/contact-sales or my.LSEG.com/content/mytr/en/helpandsupport.html