

Stocks receive a yearend booster shot

December 2021

Research Signals

Two years into the pandemic, stocks posted another banner year, particularly in US and European markets, supported by both monetary and fiscal policy and strong corporate earnings. While the robust stock market recovery was unexpected at the beginning of the pandemic, heading into 2022, investors' resolve will be tested by potential economic restrictions from coronavirus variants and inflation. A regime shift in interest rates poses additional risks with many central banks moving toward tighter monetary policy, as value factors continue to fight for domination in several regional markets (Table 1).

- US: Deep Value and Short Sentiment measures outperformed, including TTM EBITDA-to-Enterprise Value and Demand Supply Ratio, respectively
- Developed Europe: Value outperformed growth, as captured respectively by Forward 12-M EPS-to-Enterprise Value and Reinvestment Rate
- Developed Pacific: Book-to-Market was a positive signal in December, though in markets outside Japan, Price Momentum measures such as Industry-adjusted 12-month Relative Price Strength were also highly rewarded
- Emerging markets: Price Momentum measures including Rational Decay Alpha upended Deep Value's two-month run as a key driver

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Table 1

Global factor quantile return spread (%) performance snapshot, Dec 2021

Factor	Factor Group	US Large Cap	US Small Cap	Developed Europe	Developed Pacific ex Japan	Japan Standard Cap	Emerging Markets
Book-to-Market		1.40	6.00	2.01	2.06	10.55	-1.21
Forward 12-M EPS-to-Enterprise Value	Deep Value	9.48	8.63	5.39	7.76	6.97	2.28
TTM EBITDA-to-Enterprise Value		7.10	9.17	4.64	6.99	6.19	-0.31
TTM Free Cash Flow-to-Enterprise Value		-0.92	6.08	1.08	2.01	1.82	0.19
Industry Relative Leading 4-QTRs EPS to Price		6.27	12.79	3.90	5.82	8.10	0.99
Industry Relative TTM Dividend Yield	Relative Value	3.53	1.76	1.04	0.50	5.03	-0.15
Fixed Assets Turnover Ratio	Management Quality	-2.13	3.28	1.73	-2.26	-5.24	-0.20
Inventory Turnover Ratio		-0.68	2.25	1.46	6.29	-1.58	-1.59
Net Operating Asset Turnover		0.75	0.61	0.29	4.57	-3.55	1.25
Change in Accruals to Assets	Earnings Quality	-1.90	-1.68	0.95	-3.14	-2.26	-0.02
Change in TTM COGS vs. Inventory Level		1.55	4.92	2.42	-0.24	3.38	0.08
Change in TTM Sales vs. Accounts Receivable		-0.51	0.36	-1.01	-3.20	-3.38	-0.06
Working Capital Accruals		0.52	-0.54	1.29	2.20	2.66	-0.16
1-yr Growth in TTM Free Cash Flow	Historical Growth	-0.76	4.57	1.37	2.99	-1.29	0.22
Reinvestment Rate		1.62	7.73	-0.31	2.88	-2.36	1.24
Average Monthly Trading Volume-to-Market Cap		-6.05	-16.09	-0.12	-3.09	-1.80	0.51
60-Month Beta	Liquidity, Risk & Size	4.68	5.29	-2.35	-3.05	-1.70	-1.09
Asset Quality Index		2.74	-3.68	-2.17	-0.97	-1.46	-1.21
Operating Leverage		-1.99	-1.50	-1.37	-1.22	1.89	-0.52
Natural Logarithm of Market Capitalization		-1.13	-4.59	-0.63	-0.54	2.12	0.06
2-Year Ahead EPS Growth	Earnings Momentum	2.54	-3.98	0.91	-4.79	-1.39	-1.07
3-M Revision in FY2 EPS Forecasts		2.37	2.04	2.24	6.35	2.07	2.34
Real Earnings Surprise		0.92	5.29	-0.17	0.27	2.22	-0.32
24-Month Value at Risk	Price Momentum	0.91	6.13	-1.86	2.74	3.63	0.48
5-day Industry Relative Return		-0.12	-0.50	2.11	2.51	-5.37	-2.38
Industry-adjusted 12-month Relative Price Strength		-0.87	0.23	2.91	5.07	-1.64	1.81
Rational Decay Alpha		-4.80	-8.29	-0.08	0.49	2.13	2.99
Demand Supply Ratio	Short Sentiment	8.92	15.83	3.28	1.74	3.26	-0.88
Implied Loan Rate		6.08	11.09	1.36	4.04	4.85	0.04

Source: IHS Markit

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United States

US Large Cap

US manufacturing production growth remains constrained as material shortages and supplier delays dragged on. The December PMI posted at 57.7, down from 58.3 in November, marking the slowest rate of improvement in 2021. Yet, December stock market performance underscored a stellar year for US equities, supported by strong corporate profits and vaccine developments.

Investors took on more risk into the end of 2021, pushing several Liquidity, Risk & Size measures to the top of the factor performance leaderboard for US large caps in December (Table 2). 1-Month Realized Stock Return Volatility (11.87%) is one such factor that turned in a strong double-digit spread, extending November's comeback performance (Figure 1). Deep Value measures also continued their efforts for market leadership, exemplified by factors such as Time Weighted EBITDA/EV (11.43%), while Price Momentum factors including 24-Month Active Return with 1-Month Lag (-9.60%) were among the two weakest performing factors (Table 3) for the month.

Table 2

US Large Cap top decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
1-Month Stock Return Interquartile Range	11.92	Liquidity, Risk & Size
1-Month Realized Stock Return Volatility	11.87	Liquidity, Risk & Size
60-Day Residual Risk	11.82	Liquidity, Risk & Size
At the Money Call Option Implied Volatility	11.61	Liquidity, Risk & Size
Time Weighted EBITDA/ EV	11.43	Deep Value
At the Money Put Option Implied Volatility	10.20	Liquidity, Risk & Size
CV of Prior 90-Day Closing Prices	10.11	Price Momentum
Leading 12 Month EBITDA/ EV	10.09	Deep Value
TTM Sales-to-Enterprise Value	10.07	Deep Value
Distress Measure	9.49	Liquidity, Risk & Size
Forward 12-M EPS-to-Enterprise Value	9.48	Deep Value
Inflation Sensitivity	9.31	Macro
Average Trading Volume in Preceding 6-month	9.27	Price Momentum
TTM Sales-to-Price	9.23	Deep Value
Time Weighted Earnings Yield	9.18	Deep Value

Source: IHS Markit

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Figure 1

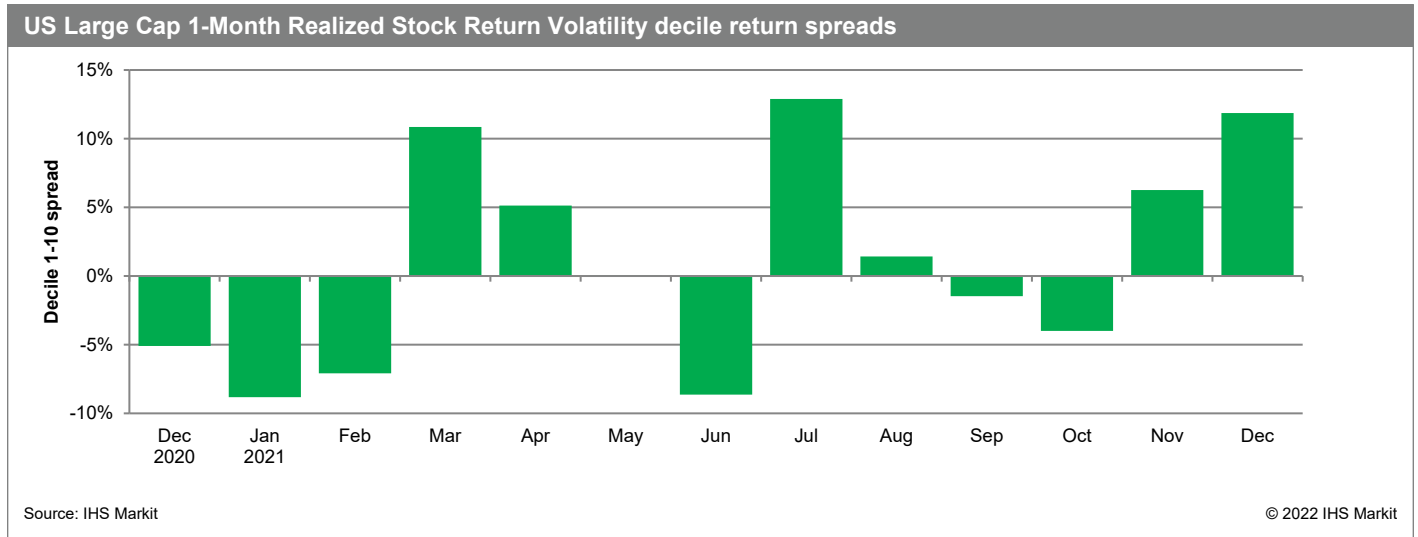


Table 3

US Large Cap bottom decile return spread factor performance, Dec 2021		
Factor	Decile spread (%)	Factor group
24-Month Active Return with 1-Month Lag	-9.60	Price Momentum
Industrial Production Sensitivity	-7.84	Macro
Advertising Intensity	-7.81	Management Quality
Growth Duration	-7.77	Liquidity, Risk & Size
18-Month Active Return with 1-Month Lag	-7.57	Price Momentum
TTM Capital Expenditures-to-Price	-7.52	Deep Value
Attention Span Ratio	-7.08	Management Quality
3-yr Compound Annual Sales Growth	-6.53	Historical Growth
Average Monthly Trading Volume-to-Market Cap	-6.05	Liquidity, Risk & Size
Implied Volatility	-5.93	Liquidity, Risk & Size

Source: IHS Markit

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US Small Cap

Like large caps, small cap top performing factors in December (Table 4) were indicative of investor risk taking, as captured by measures such as At the Money Put Option Implied Volatility (15.85%). However, at the same time, investors continued to avoid highly shorted shares, with factors such as Demand Supply Ratio (15.83%) outperforming in all but two months in 2021 and reaching its highest spread in the final month of the year (Figure 2). At the opposite extreme, Natural Logarithm of Closing Price (-8.58%) remained one of the weakest performing factors (Table 5), as small and micro caps continued to underperform in December.

Table 4

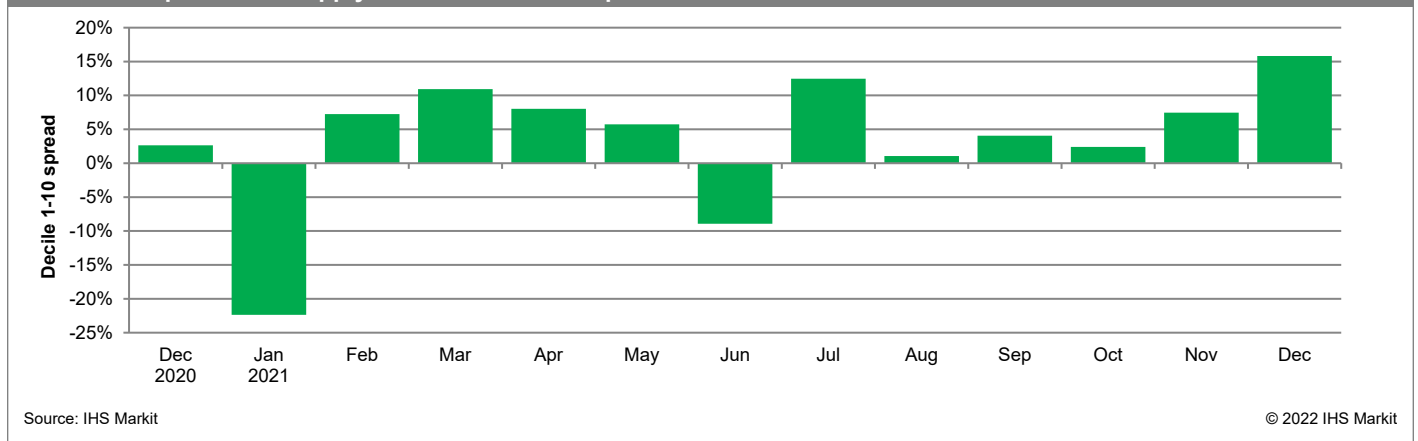
US Small Cap top decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
At the Money Put Option Implied Volatility	15.85	Liquidity, Risk & Size
Demand Supply Ratio	15.83	Short Sentiment
Utilization	15.79	Short Sentiment
24-Month Residual Return Variance	15.66	Price Momentum
Active Utilization	15.34	Short Sentiment
60-Day Residual Risk	14.54	Liquidity, Risk & Size
Regression Error of 60-Month CAPM	14.26	Liquidity, Risk & Size
Stock Return Volatility	14.13	Liquidity, Risk & Size
60-Month Trading Volume Trend	14.05	Liquidity, Risk & Size
At the Money Call Option Implied Volatility	13.62	Liquidity, Risk & Size
51- Week Volume Price Trend with 4-week Lag	13.27	Price Momentum
Net External Financing	13.21	Management Quality
Average Trading Volume in Preceding 6-month	12.99	Price Momentum
Industry Relative Leading 4-QTRs EPS to Price	12.79	Relative Value
Tobin q	12.67	Liquidity, Risk & Size

Source: IHS Markit

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Figure 2

US Small Cap Demand Supply Ratio decile return spreads

Source: IHS Markit

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Table 5

US Small Cap bottom decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
Average Monthly Trading Volume-to-Market Cap	-16.09	Liquidity, Risk & Size
Advertising Intensity	-10.91	Management Quality
Implied Volatility	-10.21	Liquidity, Risk & Size
Ohlson Bankruptcy Score	-8.76	Liquidity, Risk & Size
Natural Logarithm of Closing Price	-8.58	Liquidity, Risk & Size
Rational Decay Alpha	-8.29	Price Momentum
Attention Span Ratio	-6.44	Management Quality
Average Payable Period	-6.02	Management Quality
Product of TTM FCF Yield and Forward ROE	-5.95	Earnings Momentum
3-Month Active Return	-5.87	Price Momentum

Source: IHS Markit

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Europe

Despite alleviating pressures on supply chains, eurozone manufacturing sector growth eased in December, with the PMI registering at 58.0, down from 58.4 in November. Italy once again led broad euro area growth, followed by Greece, while France sat at the opposite end of the scale. December equity market performance capped a strong year for stocks, as investors, inspired by US market returns, looked past the latest variant in coronavirus infections and toward positive economic growth.

Deep Value measures dominated the list of top performing factors in December (Table 6). Time Weighted Earnings Yield (7.64%) led the way, extending its six-month string of outperformance to end the year with positive spreads in all but two months (Figure 3). On the other hand, Historical Growth measures were among the weakest performers for the month (Table 7), including factors such as 3-yr Compound Annual Sales Growth (-3.96%).

Table 6

Developed Europe top decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
Time Weighted Earnings Yield	7.64	Deep Value
Time Weighted Cash Yield	6.89	Deep Value
Leading 12 Month Cash Yield	5.84	Deep Value
Normalized Earnings Yield	5.41	Deep Value
Forward 12-M EPS-to-Enterprise Value	5.39	Deep Value
Cash & Equivalents-to-Current Liabilities	5.34	Liquidity, Risk & Size
Asset Composition	5.33	Liquidity, Risk & Size
Forward Free Cash Flow-to-Price	5.26	Deep Value
Leading 12-Month Median Earnings Yield	5.24	Deep Value
Leading 12-Month Mean Earnings Yield	5.20	Deep Value
Current Ratio	5.08	Liquidity, Risk & Size
Working Capital-to-Trailing 12-Month Sales	5.06	Management Quality
Quick Ratio	5.03	Liquidity, Risk & Size
TTM EBITDA-to-Price	4.78	Deep Value
TTM EBITDA-to-Enterprise Value	4.64	Deep Value

Source: IHS Markit

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Figure 3

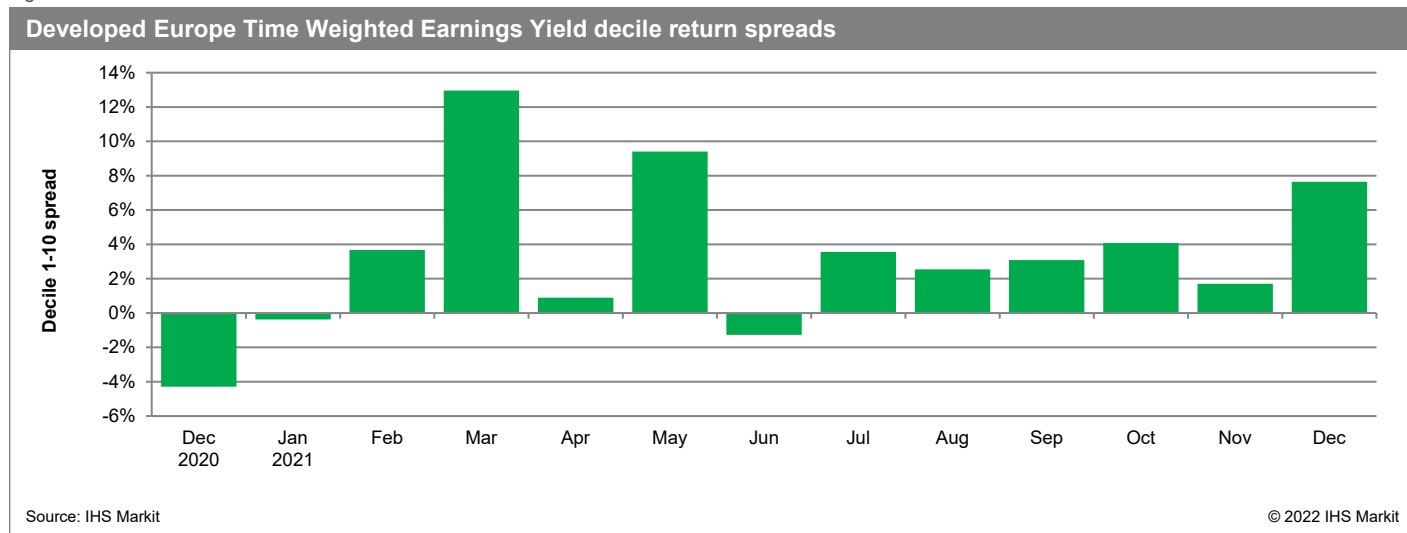


Table 7

Developed Europe bottom decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
3-yr Compound Annual Sales Growth	-3.96	Historical Growth
Debt to Market Cap	-3.23	Liquidity, Risk & Size
Market Volatility Sensitivity	-3.12	Macro
Unexpected Change in Accounts Payable	-2.81	Earnings Quality
3-yr Change in Assets-adj TTM Cash Flow	-2.64	Historical Growth
Yearly TTM Total Sales Growth Rate	-2.60	Historical Growth
5-yr Relative Book-to-Market	-2.55	Relative Value
24-Month Active Return with 1-Month Lag	-2.37	Price Momentum
60-Month Beta	-2.35	Liquidity, Risk & Size
YOY Chg in Acct Receivable to Current Assets	-2.27	Management Quality

Source: IHS Markit

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Asia-Pacific

Manufacturing operating conditions in the two largest Asian economies of China and Japan once again reside in expansion territory at the end of 2021. The China manufacturing PMI signaled renewed improvement in the health of the sector, with the headline number rising from 49.9 in November to 50.9 in December, the strongest reading since June on improved market conditions and stronger customer demand. The Japanese manufacturing sector registered a solid improvement, with the PMI posting at 54.3 in December, a slight dip from 54.5 in November on slower rates of increase in output and new orders, but well above the full-year 2021 average (52.7). In equity markets, thinner investor optimism in both countries over the course of 2021 resulted in a volatile ride, limiting the upside for the year.

In developed markets outside Japan, Price Momentum measures sat beside Deep Value as the top performing factors in December (Table 8), including measures such as 50-200 Day Stock Price Ratio (10.30%) and Leading 12 Month EBITDA/EV (10.11%). However, performance was topped by 52-Week High (10.77%), as investors rewarded shares trading closest to their annual high, a trend that has been in place for much of 2021 (Figure 4). Alternatively, Management Quality measures such as TTM Gross Profit Margin (-6.39%) were among the bottom performing factors for the month (Table 9).

In Japan, Deep Value measures occupied nearly the totality of the list of outperformers in December (Table 10). Book-to-Market (10.55%) took top honors, with solid performance not seen since the first quarter of the year (Figure 5). This contrasts with the appearance of 2-Year Ahead Projected EPS Growth (-5.29%) on the laggard board (Table 11).

Table 8

Developed Pacific exJapan top decile return spread factor performance, Dec 2021

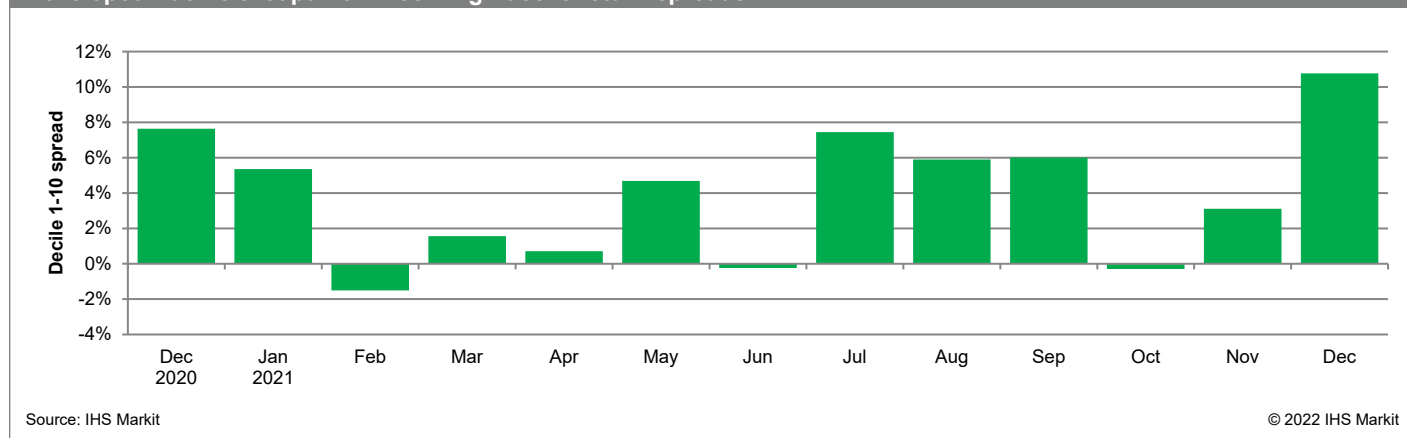
Factor	Decile spread (%)	Factor group
52-Week High	10.77	Price Momentum
50-200 Day Stock Price Ratio	10.30	Price Momentum
Leading 12 Month EBITDA/ EV	10.11	Deep Value
39-Week Return with 4-week Lag	10.08	Price Momentum
Time Weighted EBITDA/ EV	9.84	Deep Value
15/36 Week Stock Price Ratio	9.58	Price Momentum
Time Weighted Cash Yield	9.47	Deep Value
9-Month Active Return with 1-Month Lag	9.10	Price Momentum
Operating Cash Flow Ratio	8.89	Liquidity, Risk & Size
Working Capital-to-Trailing 12-Month Sales	8.86	Management Quality
TTM Operating Income to Enterprise Value	8.76	Deep Value
26-Week Relative Price Strength	8.40	Price Momentum
Inflation Sensitivity	8.22	Macro
Asset Composition	8.22	Liquidity, Risk & Size
Cash & Equivalents-to-Current Liabilities	8.19	Liquidity, Risk & Size

Source: IHS Markit

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Figure 4

Developed Pacific exJapan 52-Week High decile return spreads



Source: IHS Markit

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Table 9

Developed Pacific exJapan bottom decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
Attention Span Ratio	-8.29	Management Quality
Ohlson Bankruptcy Score	-7.51	Liquidity, Risk & Size
On Loan Value Concentration	-7.37	Short Sentiment
TTM Capital Expenditures-to-Price	-6.57	Deep Value
Operating Liability Leverage	-6.38	Management Quality
Market Volatility Sensitivity	-6.05	Macro
Earnings Shortfall	-5.50	Earnings Quality
3-yr Compound Annual Sales Growth	-5.08	Historical Growth
2-Year Ahead EPS Growth	-4.79	Earnings Momentum
YOY Chg in Acct Receivable to Current Assets	-4.68	Management Quality

Source: IHS Markit

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Table 10

Japan Standard Cap top decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
Tobin q	10.70	Liquidity, Risk & Size
Book-to-Market	10.55	Deep Value
Graham Number Fair Value Premium	10.48	Deep Value
Time Weighted Earnings Yield	10.42	Deep Value
Price-to-Total Assets	10.30	Deep Value
Time Weighted Book Yield	10.24	Deep Value
Leading 12 Month Book Yield	10.09	Deep Value
Leading 12-Month Median Earnings Yield	9.87	Deep Value
Price-to-Book Return-on-Equity Combination	9.86	Deep Value
Leading 12-Month Mean Earnings Yield	9.84	Deep Value
TTM EBITDA-to-Price	9.83	Deep Value
Net Asset Value to Price	9.68	Deep Value
Leading 12 Month Cash Yield	9.44	Deep Value
TTM Cash Flow-to-Price	9.01	Deep Value
Natural Logarithm of Total Assets (USD)	8.87	Liquidity, Risk & Size

Source: IHS Markit

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Figure 5

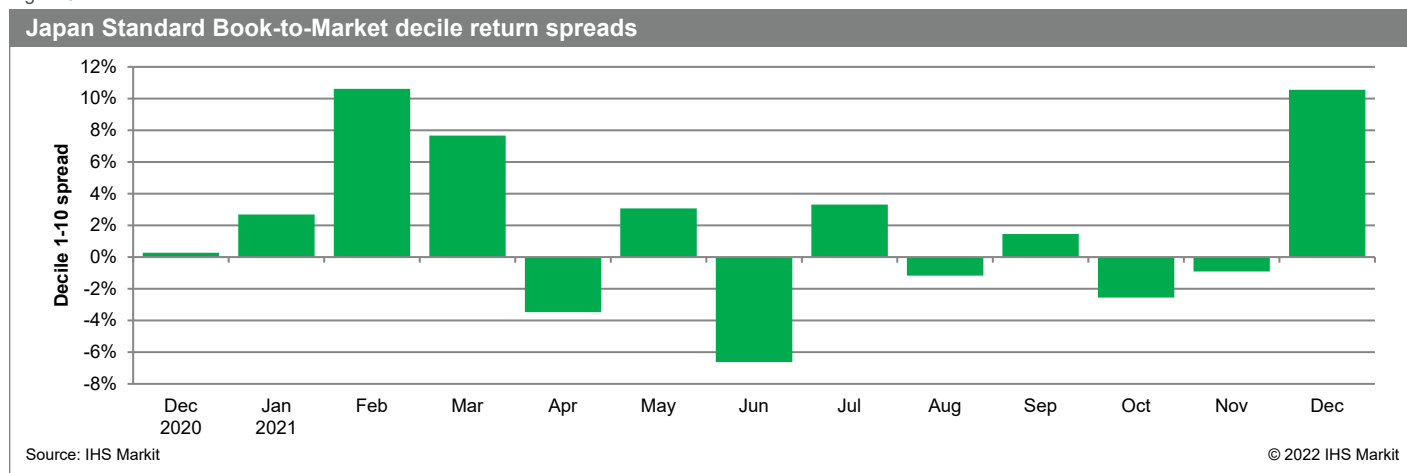


Table 11

Japan Standard Cap bottom decile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
TTM Capital Expenditures-to-Price	-7.54	Deep Value
3-yr Compound Annual Sales Growth	-6.50	Historical Growth
TTM Gross Profit Margin	-6.39	Management Quality
Debt to Market Cap	-6.14	Liquidity, Risk & Size
TTM Gross Profit to Assets	-5.49	Management Quality
5-day Industry Relative Return	-5.37	Price Momentum
Fixed Assets Turnover Ratio	-5.24	Management Quality
Cash Flow Leverage	-5.18	Liquidity, Risk & Size
24-Month Active Return with 1-Month Lag	-5.16	Price Momentum
Net Debt to EBITDA	-5.01	Management Quality

Source: IHS Markit

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Emerging Markets

We round out our review with a list of top (Table 12) and bottom (Table 13) performing factors in emerging markets in December. Price Momentum measures were prominent on the leaderboard, led by 39-Week Return with 4-week Lag (5.32%), whose performance for the year was only outmatched in February (Figure 6). This contrasts with long-term price reversal metrics which sat at the opposite end of the performance spectrum, such as 60-Month Active Return with 1-Month Lag (-3.79%).

Table 12

Emerging Markets top quintile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
39-Week Return with 4-week Lag	5.32	Price Momentum
9-Month Active Return with 1-Month Lag	5.02	Price Momentum
Fama-French Momentum	4.45	Price Momentum
24-Month Active Return with 1-Month Lag	4.44	Price Momentum
Inflation Sensitivity	4.27	Macro
30-75 Week Stock Price Ratio	4.27	Price Momentum
26-Week Relative Price Strength	4.09	Price Momentum
52-Week High	4.07	Price Momentum
1-Year Price Momentum Indicator	4.03	Price Momentum
18-Month Active Return with 1-Month Lag	3.83	Price Momentum
12-Month Active Return with 1-month Lag	3.77	Price Momentum
Slope of 52 Week Price Trend Line	3.76	Price Momentum
Averaged Last 6-M EPS Revisions for FY2	3.35	Earnings Momentum
Second Preceding 6-month Return	3.34	Price Momentum
50-200 Day Stock Price Ratio	3.20	Price Momentum

Source: IHS Markit

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Figure 6

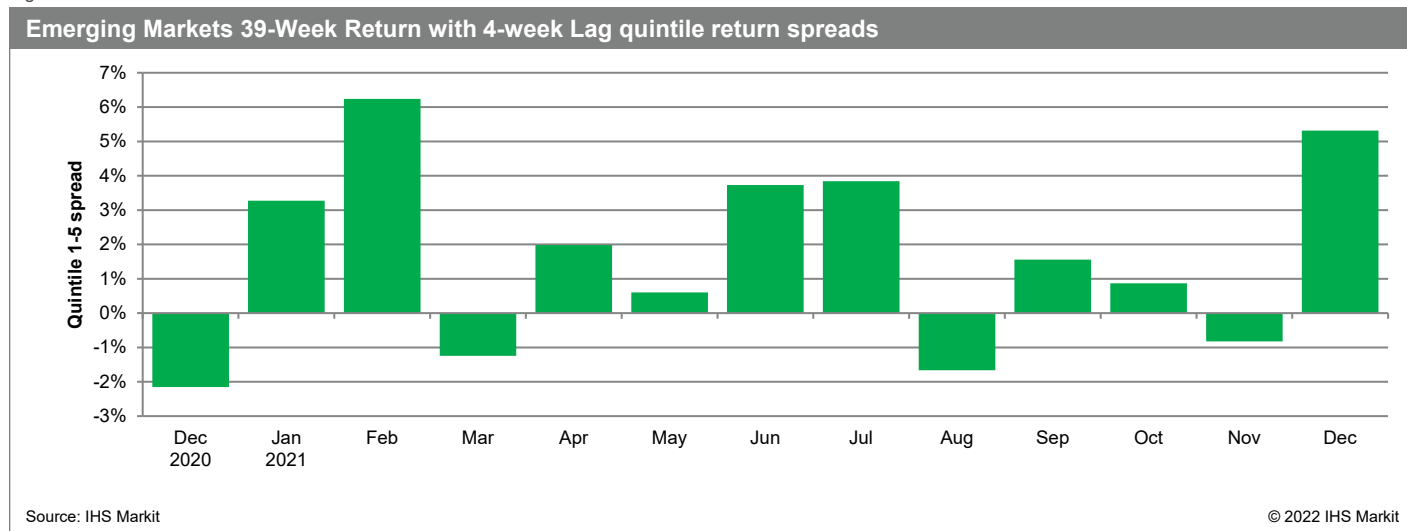


Table 13

Emerging Markets bottom quintile return spread factor performance, Dec 2021

Factor	Decile spread (%)	Factor group
5-yr Relative Book-to-Market	-4.69	Relative Value
Price Above Last 260-day Lowest Trading Price	-4.46	Price Momentum
60-Month Active Return with 1-Month Lag	-3.79	Price Momentum
4-week Industry Relative Return	-3.79	Price Momentum
5-yr Relative TTM Sales-to-Price	-3.79	Relative Value
1-Month Active Return	-3.54	Price Momentum
60-Month Alpha	-3.52	Price Momentum
14 Day Relative Strength Index	-3.38	Price Momentum
36-Month Active Return with 1-Month Lag	-3.15	Price Momentum
3-Month Active Return	-2.93	Price Momentum

Source: IHS Markit

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