No pivot in value outperformance

November 2022

Research Signals

Investors across major regional markets continued to bid up stocks last month in hopes of a pivot in central bank policy towards a less aggressive pace in rate hikes given weaker economic data points. Supporting this thesis, the November J.P.Morgan Global Manufacturing PMITM fell to a 29-month low, with 23 of the 31 nations with available data in contraction territory, including China, the US, the euro area and Japan. The extension of the upward trend in stocks carried over to a continuation in outperformance from value factors (Table 1).

- US: Deep Value and Management Quality factors were highly favored, including TTM EBITDA-to-Enterprise Value and Net Operating Asset Turnover, respectively
- Developed Europe: Implied Loan Rate, a Short Sentiment measure of the cost of borrowing a stock, was the top performing signal across our factor library last month
- Developed Pacific: In markets outside Japan, significant double-digit spreads were associated with 5-day Industry Relative Return outperformance and Rational Decay Alpha underperformance
- Emerging markets: Deep Value measures remained highly rewarded, as represented by Forward 12-M EPS-to-Enterprise Value

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Table 1

Global factor quantile return spread (%) performance snapshot, November 2022							
		110.1	US	Davidened	Developed	Japan	Emerica:
Factor	Factor Group	US Large	Small	Developed	Pacific ex	Standard	Emerging
Book-to-Market	Factor Group	Cap 2.57	<u>Cap</u> 2.49	Europe 1.42	Japan 16.12	2.52	Markets 4.80
Forward 12-M EPS-to-Enterprise	=	-					
Value	- Deep Value	4.07	12.44	2.85	-2.01	1.26	8.90
TTM EBITDA-to-Enterprise Value	_	5.34	11.62	1.21	-6.41	-2.67	6.04
TTM Free Cash Flow-to-Enterprise Value		1.62	11.48	2.04	-5.23	-0.58	2.60
Industry Relative Leading 4-QTRs EPS to Price	 Relative Value 	0.00	13.10	3.14	5.12	-0.24	6.96
Industry Relative TTM Dividend Yield	residence value	0.48	4.28	4.74	11.15	-0.85	3.51
Fixed Assets Turnover Ratio	- Managanant	-1.19	3.33	2.98	8.59	2.69	2.92
Inventory Turnover Ratio	ManagementQuality	-5.32	2.62	0.19	-4.74	0.65	-0.83
Net Operating Asset Turnover	,	4.13	6.87	2.63	3.28	-0.33	3.13
Change in Accruals to Assets	_	0.09	1.64	1.84	1.83	-1.33	0.77
Change in TTM COGS vs. Inventory Level	Earnings Quality	4.61	7.46	1.68	2.01	-1.96	-1.66
Change in TTM Sales vs. Accounts Receivable	- Lamings Quanty	-0.54	-1.04	3.05	-2.56	0.64	-0.63
Working Capital Accruals		-1.24	1.07	-0.16	-5.12	1.99	0.80
1-yr Growth in TTM Free Cash Flow	_ Historical Growth	-1.69	4.66	0.78	-1.73	1.06	1.10
Reinvestment Rate		8.71	9.97	0.91	-8.08	3.16	0.86
Average Monthly Trading Volume- to-Market Cap	_	-3.58	-10.22	1.24	4.72	2.27	7.03
60-Month Beta	5	-1.81	2.33	-5.17	13.00	-4.36	-2.40
Asset Quality Index	Liquidity, Risk &Size	-2.03	1.62	3.35	7.18	0.41	2.42
Operating Leverage	_	-3.49	-4.32	2.81	2.48	0.21	-0.62
Natural Logarithm of Market Capitalization		-0.33	-6.81	-2.34	-3.26	0.17	3.61
2-Year Ahead EPS Growth	_	-1.20	0.33	0.76	18.73	-2.32	1.73
3-M Revision in FY2 EPS Forecasts	Earnings _ Momentum	-7.30	-4.89	-2.79	-16.68	-0.49	-2.46
Real Earnings Surprise		-0.97	-4.26	-0.07	-10.07	2.39	-1.11
24-Month Value at Risk		0.11	5.66	-2.38	-20.08	-2.30	-8.03
5-day Industry Relative Return	_	0.44	3.52	1.28	23.73	-0.44	0.33
Industry-adjusted 12-month Relative Price Strength	Price Momentum	-5.00	-1.55	-6.53	3.70	-0.05	-0.29
Rational Decay Alpha		1.58	4.50	-5.18	-18.23	3.09	-2.58
Demand Supply Ratio	- Short Sentiment	3.89	8.30	-2.20	-3.32	-0.57	-4.20
Implied Loan Rate	SHORE SERVINEER	3.91	10.85	6.28	-2.39	0.28	-6.13

United States

US Large Cap

US manufacturing firms in November signaled the first deterioration in performance since June 2020, with the headline PMI posting at 47.7, down from 50.4 in October, on a renewed decline in output amid a faster fall in new orders. As economic data continues to soften, stocks staged a second monthly rise, capped by Federal Reserve chair Powell's speech indicating that the pace of interest rate hikes may slow as soon as the December meeting.

Historical Growth and Management Quality measures joined Deep Value as the top performing factors for large caps in November (Table 2). Sustainable Growth Rate (9.12%) led the former group, while Return on Assets (7.89%) was the top performing quality measure and has posted performance in all but three months over the past year (Figure 1). Leading 12 Month EBITDA/EV was also a highly rewarded value measure again last month, while the weakest performers (Table 3) include 3-M Revision in FY2 EPS Forecasts (-7.30%), 1-Year Price Momentum Indicator (-6.75%) and US Dollar Value Sensitivity (-6.58%).

Table 2

US Large Cap top decile return spread factor pe	rformance, November 2022	
Factor	Decile spread (%)	Factor group
Sustainable Growth Rate	9.12	Historical Growth
Reinvestment Rate	8.71	Historical Growth
Interest Coverage	8.33	Liquidity, Risk & Size
Return on Assets	7.89	Management Quality
Pretax Return on Net Operating Assets	7.76	Management Quality
Leading 12 Month EBITDA/ EV	7.49	Deep Value
Price Above Last 260-day Lowest Trading Price	7.25	Price Momentum
Time Weighted EBITDA/ EV	7.10	Deep Value
TTM Operating Income to Enterprise Value	6.97	Deep Value
Profitability Ratio	6.80	Management Quality
Change in QTR Sales vs. Gross Margin	6.78	Earnings Quality
TTM Cash Flow-to-Price	6.61	Deep Value
Return on Invested Capital	6.60	Management Quality
The Visibility Ratio	6.59	Price Momentum
TTM Sales-to-Enterprise Value	6.53	Deep Value

Figure 1

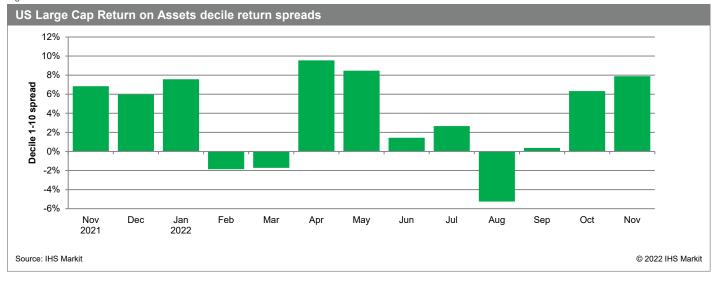


Table 3

Factor	Decile spread (%)	Factor group	
1-yr Change in Sales	-8.03	Historical Growth	
Yearly TTM Total Sales Growth Rate	-7.59	Historical Growth	
3-M Revision in FY2 EPS Forecasts	-7.30	Earnings Momentum	
Time Weighted Earnings Revision	-7.25	Earnings Momentum	
1-Year Price Momentum Indicator	-6.75	Price Momentum	
US Dollar Value Sensitivity	-6.58	Macro	
1-Year Growth of Quarterly Regular Dividend	-6.56	Historical Growth	
3-M Revision in FY1 EBITDA Forecasts: Dispersion Relative	-6.48	Earnings Momentum	
Accounting Accruals	-6.32	Earnings Quality	
Time Weighted Earnings Revision Dispersion	-6.32	Earnings Momentum	

US Small Cap

Deep Value also remained a strong performing signal among small caps in November (Table 4). Leading 12-Month Mean Earnings Yield (14.07%) was the topmost performer in this group and has posted positive spreads in all but two months since this time last year, with six of the months reaching double-digit performance (Figure 2). On the other hand, factors which trailed for the month (Table 5) include Natural Logarithm of Closing Price (-11.49%), Implied Volatility (-8.87%) and 6-Month Nominal Change in 36-Month Alpha (-8.03%).

Table 1

Table 4		
US Small Cap top decile return spread factor pe	erformance, November 2022	
Factor	Decile spread (%)	Factor group
SG&A Expenses-to-Sales	15.04	Management Quality
Leading 12-Month Mean Earnings Yield	14.07	Deep Value
Leading 12-Month Median Earnings Yield	13.91	Deep Value
TTM Operating Income to Enterprise Value	13.71	Deep Value
Industry Relative Leading 4-QTRs EPS to Price	13.10	Relative Value
Leading 12 Month EBITDA/ EV	12.47	Deep Value
Forward 12-M EPS-to-Enterprise Value	12.44	Deep Value
Natural Logarithm of TTM Sales (USD)	11.77	Liquidity, Risk & Size
Profitability Ratio	11.64	Management Quality
TTM EBITDA-to-Enterprise Value	11.62	Deep Value
TTM Free Cash Flow-to-Enterprise Value	11.48	Deep Value
At the Money Put Option Implied Volatility	11.45	Liquidity, Risk & Size
Operating Cash Flow Ratio	11.45	Liquidity, Risk & Size
TTM EBITDA-to-Price	11.13	Deep Value
Forward Free Cash Flow-to-Price	11.00	Deep Value

Source: IHS Markit © 2022 IHS Markit

Figure 2

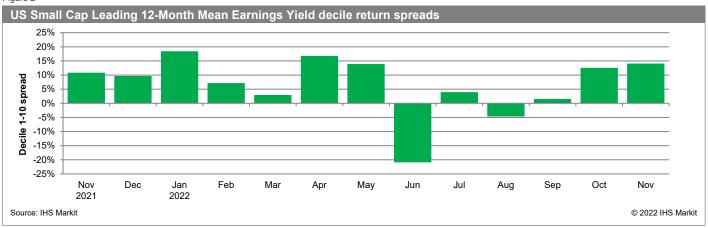


Table 5

US Small Cap bottom decile return spread factor performance, November 2022

Factor	Decile spread (%)	Factor group
Advertising Intensity	-14.62	Management Quality
Natural Logarithm of Closing Price	-11.49	Liquidity, Risk & Size
Product of TTM FCF Yield and Forward ROE	-11.33	Earnings Momentum
Average Monthly Trading Volume-to-Market Cap	-10.22	Liquidity, Risk & Size
Ohlson Bankruptcy Score	-9.54	Liquidity, Risk & Size
Implied Volatility	-8.87	Liquidity, Risk & Size
Attention Span Ratio	-8.11	Management Quality
6-Month Nominal Change in 36-Month Alpha	-8.03	Price Momentum
Abnormal Return around QTR Earnings Release	-7.52	Price Momentum
Volatility Spread	-7.13	Liquidity, Risk & Size

Europe

The downturn in the eurozone manufacturing sector continued in November, with the PMI posting at 47.1, though slightly higher than October's reading of 46.4, as rates of decline in output and new orders were less aggressive and inflationary pressures eased further. All the monitored eurozone nations recorded readings in contraction territory, with Ireland seeing performance worsen last month. Yet, stocks finished a strong month on investor hopes that the European Central Bank will slow its interest rate hikes as inflation dropped by more than expected.

Short Sentiment metrics were among the top performing factors in Developed Europe in November (Table 6). Implied Loan Rate (6.28%), a measure of the cost of borrowing a stock, sat at the uppermost extreme, with a strong bounce in performance (Figure 3) marking the highest spread since February 2012. Other top performers include 60-Month Alpha (6.17%), a long-term price reversal measure, and Basic Defensive Interval (5.78%), a risk measure of a company's ability to satisfy its debts. At the opposite extreme, factors which underperformed in November (Table 7) were dominated by Price Momentum measures including 1-Year Price Momentum Indicator (-8.11%).

Table 6

Factor	Decile spread (%)	Factor group
Implied Loan Rate	6.28	Short Sentiment
60-Month Alpha	6.17	Price Momentum
Number of Analyst Coverage	6.16	Liquidity, Risk & Size
Demand Value Concentration	5.93	Short Sentiment
Basic Defensive Interval	5.78	Liquidity, Risk & Size
Short Concentration Ratio	5.55	Short Sentiment
Lending Supply	5.48	Short Sentiment
On Loan Value Concentration	4.97	Short Sentiment
60-Month Active Return with 1-Month Lag	4.87	Price Momentum
Inventory Value Concentration	4.85	Short Sentiment
Industry Relative TTM Dividend Yield	4.74	Relative Value
Capital Expenditures to Depreciation Linkage	4.07	Management Quality
Percent Change in Shares Outstanding	4.01	Earnings Quality
TTM Gross Profit to Assets	3.98	Management Quality
60-Month Trading Volume Trend	3.96	Liquidity, Risk & Size

Figure 3

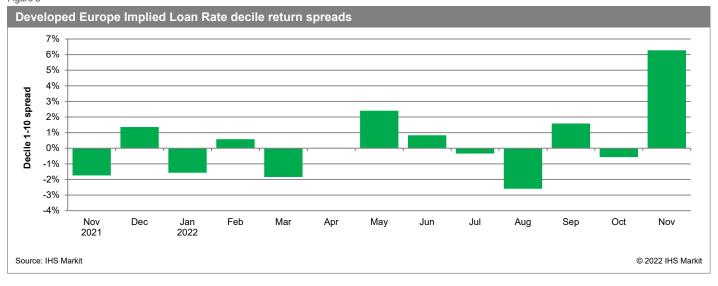


Table 7

Factor	Decile spread (%)	Factor group	
1-Year Price Momentum Indicator	-8.11	Price Momentum	
18-Month Active Return with 1-Month Lag	-8.06	Price Momentum	
9-Month Active Return with 1-Month Lag	-7.99	Price Momentum	
Short Interest	-7.99	Short Sentiment	
12-Month Active Return with 1-month Lag	-7.96	Price Momentum	
Industry-adjusted 12-month Relative Price Strength	-6.53	Price Momentum	
50-200 Day Stock Price Ratio	-6.42	Price Momentum	
Natural Logarithm of Market Capitalization (USD)	-6.34	Liquidity, Risk & Size	
Fama-French Momentum	-6.15	Price Momentum	
30-75 Week Stock Price Ratio	-6.03	Price Momentum	

Asia-Pacific

Manufacturing operating conditions in the two largest Asian economies of China and Japan resided in contraction territory in November. In Japan, the PMI fell to 49.0 in November, from 50.7 in October, as output and new orders contracted at the fastest pace since August 2020. In China, the manufacturing PMI signaled further contraction, though with a marginal rise to 49.4 in November, from 49.2 in October, as firms cut back on purchasing activity. However, stocks rose in both nations even as ongoing Covid-19 containment measures in China continued to weigh on the economy.

In developed markets outside Japan, short-term price reversal and value metrics dominated the factor performance leaderboard in November (Table 8). Substantial double-digit performance was recorded by measures such as 1-Month Active Return (38.44%) and Cash-to-Price (25.05%). The weakest performing factors for the month (Table 9) also posted spreads of similar magnitude, including 52-Week High (-33.65%) which reversed a four-month streak of positive spreads (Figure 4) at a level not seen since May 2009.

In Japan, value and historical growth measures topped the list of outperforming factors in November (Table 10). This included factors such as Graham Number Fair Value Premium (5.03%) and 3-yr Compound Annual Sales Growth (4.16%), respectively. 60-Month Beta (-4.36%), on the other hand, retained its position among the weakest performers last month (Table 11), indicating a second month of risk-on trading (Figure 5).

Table 8

Factor	Decile spread (%)	Factor group	
1-Month Active Return	38.44	Price Momentum	
2-Month Active Return	33.54	Price Momentum	
3-Month Active Return	32.94	Price Momentum	
4-week Industry Relative Return	29.12	Price Momentum	
14 Day Relative Strength Index	28.19	Price Momentum	
Cash-to-Price	25.05	Deep Value	
5-day Industry Relative Return	23.73	Price Momentum	
Cash to Enterprise Value	22.44	Deep Value	
5-yr Relative TTM Sales-to-Price	22.36	Relative Value	
5-yr Relative Book-to-Market	21.99	Relative Value	
Graham Number Fair Value Premium	21.40	Deep Value	
Current Liabilities-to-Price	19.96	Liquidity, Risk & Size	
Natural Logarithm of Closing Price (USD)	19.48	Liquidity, Risk & Size	
Price Above Last 260-day Lowest Trading Price	19.31	Price Momentum	
Price-to-Book Return-on-Equity Combination	18.91	Deep Value	

Table 9

Developed Pacific exJapan bottom decile return spread factor performance, November 2022 **Factor** Decile spread (%) Factor group 52-Week High -33.65 Price Momentum 26-Week Relative Price Strength -32.50 Price Momentum 50-200 Day Stock Price Ratio Price Momentum -27.99 20-Day Volume Volatility to Price Volatility -27.80 Liquidity, Risk & Size CV of Prior 90-Day Closing Prices -24.89 Price Momentum -24.78 Price Momentum 15/36 Week Stock Price Ratio 18-Month Active Return with 1-Month Lag -23.88 Price Momentum Std Dev of FY2 EPS Estimates-to-Price -22.85 **Earnings Momentum** -22.75 Liquidity, Risk & Size 1-Month Stock Return Interquartile Range Fama-French Momentum -22 14 Price Momentum Source: IHS Markit

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Figure 4

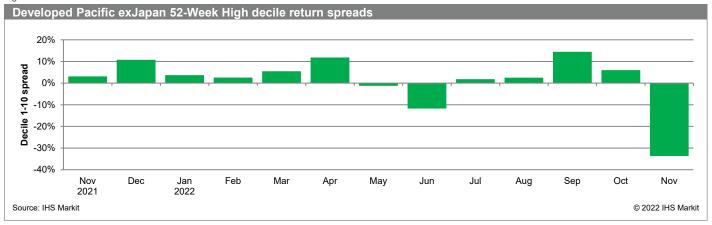


Table 10

Table 10			
Japan Standard Cap top decile return spread factor performance, November 2022			
Factor	Decile spread (%)	Factor group	
Graham Number Fair Value Premium	5.03	Deep Value	
Price-to-Book Return-on-Equity Combination	4.81	Deep Value	
Time Weighted Earnings Yield	4.19	Deep Value	
3-yr Compound Annual Sales Growth	4.16	Historical Growth	
3-yr Change in Assets-adj TTM EPS	3.94	Historical Growth	
3-yr Change in Assets-adj TTM Cash Flow	3.89	Historical Growth	
Yield Curve Slope Sensitivity	3.83	Macro	
2-Month Active Return	3.83	Price Momentum	
Leading 12-Month Median Earnings Yield	3.67	Deep Value	
3-yr Change in Price-adj TTM Cash Flow	3.59	Historical Growth	
TTM EPS before Extra Items-to-Price	3.55	Deep Value	
TTM EPS after Extra Items-to-Price	3.55	Deep Value	
Yearly TTM Total Sales Growth Rate	3.55	Historical Growth	
TTM Core Earnings-to-Price	3.52	Deep Value	
Dividend Coverage Ratio	3.48	Liquidity, Risk & Size	

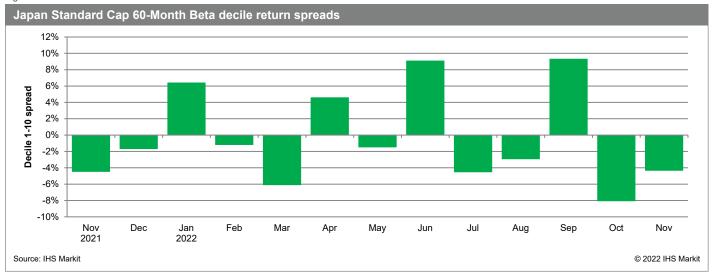
Table 11

Source: IHS Markit

Japan Standard Cap bottom decile return spread factor performance, November 2022			
Factor	Decile spread (%)	Factor group	
Trading Turnover Ratio	-4.57	Liquidity, Risk & Size	
US Dollar Value Sensitivity	-4.53	Macro	
60-Month Beta	-4.36	Liquidity, Risk & Size	
20-Day Volume Volatility to Price Volatility	-4.01	Liquidity, Risk & Size	
Stock Return Volatility	-3.78	Liquidity, Risk & Size	
1-Month Stock Return Interquartile Range	-3.72	Liquidity, Risk & Size	
36-Month Active Return with 1-Month Lag	-3.58	Price Momentum	
1-Month Realized Stock Return Volatility	-3.49	Liquidity, Risk & Size	
Average Trading Volume in Preceding 6-month	-3.43	Price Momentum	
24-Month Residual Return Variance	-3.42	Price Momentum	
Source: IHS Markit			© 2022 IHS Markit

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Figure 5



Emerging Markets

Lastly, we review top (Table 12) and bottom (Table 13) performing factors in emerging markets in November. Deep Value remained a dominant signal last month, led by Cash to Enterprise Value (10.36%), which posted a 16.9 percentage point swing in spread since September (Figure 6), with its best performance since April 1999. Investors also took on more risk, sending factors such as 1-Month Realized Stock Return Volatility (-9.96%) to the laggard board, alongside Price Momentum measures such as CV of Prior 90-Day Closing Prices (-9.95%).

Table 12

Factor	Decile spread (%)	Factor group	
Cash to Enterprise Value	10.36	Deep Value	
Lending Supply	10.20	Short Sentiment	
Time Weighted Earnings Yield	10.13	Deep Value	
TTM Growth Flow-to-Price	9.97	Deep Value	
Leading 12-Month Mean Earnings Yield	9.09	Deep Value	
Forward 12-M EPS-to-Enterprise Value	8.90	Deep Value	
Cash-to-Price	8.80	Deep Value	
Attention Span Ratio	8.74	Management Quality	
Leading 12-Month Median Earnings Yield	8.71	Deep Value	
Inventory Value Concentration	8.09	Short Sentiment	
Price-to-Book Return-on-Equity Combination	7.77	Deep Value	
5-yr Relative TTM Dividend Yield	7.61	Relative Value	
3-Month Active Return	7.54	Price Momentum	
2-Month Active Return	7.46	Price Momentum	
Edwards-Bell-Ohlson Value-to-Price	7.42	Deep Value	

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Figure 6

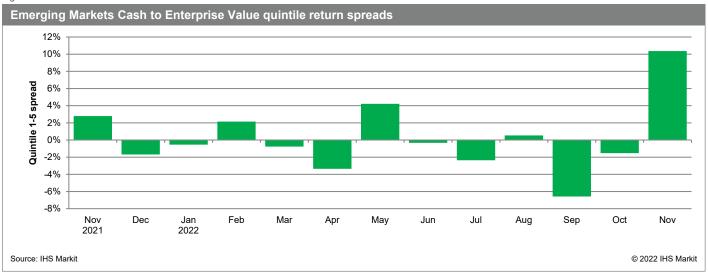


Table 13

Table 13		
Emerging Markets bottom quintile return spread factor performance, November 2022		
Factor	Decile spread (%)	Factor group
20-Day Volume Volatility to Price Volatility	-11.26	Liquidity, Risk & Size
1-Month Realized Stock Return Volatility	-9.96	Liquidity, Risk & Size
CV of Prior 90-Day Closing Prices	-9.95	Price Momentum
1-Month Stock Return Interquartile Range	-9.61	Liquidity, Risk & Size
Trading Turnover Ratio	-9.55	Liquidity, Risk & Size
Average Trading Volume in Preceding 6-month	-9.34	Price Momentum
24-Month Value at Risk	-8.03	Price Momentum
18-Month Active Return with 1-Month Lag	-7.48	Price Momentum
9-Month Active Return with 1-Month Lag	-7.19	Price Momentum
60-Day Residual Risk	-6.95	Liquidity, Risk & Size

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