

Value factors maintain momentum

December 2017

Research Signals

Global stocks had plenty to celebrate at the New Year with their best annual performance since 2009. However, a synchronized global economic recovery, confirmed by the J.P. Morgan Global Manufacturing PMI™ ending 2017 near a seven-year high, did not translate into a consistent pattern of outperformance to price momentum trades across regional markets. Indeed value factors posted another strong month across many developed markets (Table 1).

- US: TTM EBITDA-to-Enterprise Value more than doubled its prior month performance, demonstrating investors continued push toward valuation
- Developed Europe: Momentum in stock prices did not translate into like factor performance, with momentum metrics such as Rational Decay Alpha struggling further in December
- Developed Pacific: Japanese markets remain upbeat heading into the new year, with positive momentum captured by Industry-adjusted 12-month Relative Price Strength
- Emerging markets: Historical growth factors performed strongly for the month, with Reinvestment Rate leading the group

Contacts

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Table 1

Global factor quantile return spread performance snapshot, Dec 2017

Factor	Factor Group	US Large Cap	US Small Cap	Developed Europe	Developed Pacific ex Japan	Japan Standard Cap	Emerging Markets
Book-to-Market		0.36	-0.10	1.29	-0.10	0.15	-1.09
Forward 12-M EPS-to-Enterprise Value	Deep Value	0.65	3.30	-0.04	2.06	-0.31	0.44
TTM EBITDA-to-Enterprise Value		4.30	5.15	0.15	0.02	-0.98	-0.09
TTM Free Cash Flow-to-Enterprise Value		0.60	0.47	0.10	0.45	-1.19	0.80
Industry Relative Leading 4-QTRs EPS to Price	Relative Value	0.83	3.36	0.55	0.02	0.40	1.32
Industry Relative TTM Dividend Yield		0.04	1.55	-0.29	-1.95	0.72	-0.05
Fixed Assets Turnover Ratio	Management Quality	-1.15	-1.63	-1.37	1.10	2.85	0.22
Inventory Turnover Ratio		1.57	2.00	-0.73	0.71	2.24	1.42
Net Operating Asset Turnover		0.47	1.72	-1.26	2.39	0.21	-0.11
Change in Accruals to Assets	Earnings Quality	0.02	-1.87	-0.01	0.17	-0.10	1.45
Change in TTM COGS vs. Inventory Level		-0.50	-1.94	-1.05	-1.02	0.60	0.32
Change in TTM Sales vs. Accounts Receivable		0.89	0.21	2.14	0.26	0.12	0.69
Working Capital Accruals		0.81	-1.52	-1.17	-1.19	0.66	-0.15
1-yr Growth in TTM Free Cash Flow	Historical Growth	-0.24	-0.60	-0.90	1.64	0.99	0.74
Reinvestment Rate		0.07	1.59	-0.73	1.64	0.07	3.00
Average Monthly Trading Volume-to-Market Cap	Liquidity, Risk & Size	3.41	3.37	3.43	0.55	1.81	-1.45
60-Month Beta		-2.28	0.80	-1.36	-1.51	-0.72	-0.97
Asset Quality Index		1.21	2.13	-1.75	1.04	1.51	1.09
Operating Leverage		-0.54	-0.72	0.90	-0.40	-0.36	-0.53
Natural Logarithm of Market Capitalization		2.19	-0.06	1.86	1.71	1.34	-1.01
2-Year Ahead EPS Growth	Earnings Momentum	2.57	1.88	0.99	0.15	0.97	0.17
3-M Revision in FY2 EPS Forecasts		0.35	-1.00	-0.03	-0.52	2.35	-0.16
Real Earnings Surprise		-2.28	-1.19	1.04	1.06	-1.56	0.35
24-Month Value at Risk	Price Momentum	-3.57	-3.63	-2.48	-1.10	-0.75	-1.29
5-day Industry Relative Return		-1.20	0.30	2.64	1.24	-0.15	0.47
Industry-adjusted 12-month Relative Price Strength		-2.70	0.52	0.14	-1.11	1.37	2.52
Rational Decay Alpha		-3.62	-0.67	-2.49	-0.32	0.49	1.90
Demand Supply Ratio	Short Sentiment	-1.86	-2.51	-0.95	1.09	-0.39	4.03
Implied Loan Rate		-1.45	-1.66	0.36	1.53	-0.44	1.62

Source: IHS Markit

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United States

US Large Cap

Business confidence among US manufacturers remained robust in December, with the PMI registering at 55.1, up from 53.9 in November. The upbeat reading was supported by faster increases in output and new orders, with panelists citing greater demand from new and existing clients, while exports sales grew only marginally. Stocks also ended 2017 on a high note, finishing the year with the best annual gains since 2013.

Valuation and long-term price reversal were key themes among top performing factors in December (Table 2), led by TTM Operating Income to Enterprise Value (6.48%). Reversing trends from earlier in the year, this factor has outperformed in three of the last four months (Figure 1). Furthermore, the information coefficient (IC), capturing the factor's cross-sectional signal power, came in at 0.25 in December, the highest level since March 2014, confirming the robustness of performance for the month.

Also, in contrast to patterns in place for most of the year in which investors stayed with stocks that were working, Price Momentum found its way to the laggard board (Table 3) for a second consecutive month. 1-Year Price Momentum Indicator (-6.17%) posted the weakest spread, followed closely behind by Fama-French Momentum (-5.86%).

Table 2

US Large Cap top decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
TTM Operating Income to Enterprise Value	6.48	Deep Value
Leading 12 Month EBITDA/ EV	5.91	Deep Value
36-Month Active Return with 1-Month Lag	5.75	Price Momentum
Time Weighted EBITDA/ EV	5.55	Deep Value
Leading 12 Month Cash Yield	5.24	Deep Value
60-Month Active Return with 1-Month Lag	5.16	Price Momentum
5-yr Relative TTM EBITDA-to-Price	5.01	Relative Value
36-Month Sharpe Ratio	4.85	Price Momentum
Leading 12 Month Sales Yield	4.81	Deep Value
TTM EBITDA-to-Price	4.80	Deep Value
Time Weighted Sales Yield	4.80	Deep Value
60-Month Alpha	4.78	Price Momentum
5-yr Relative TTM Oper Cash Flow-to-Price	4.67	Relative Value
Sortino Ratio	4.56	Price Momentum
Implied Volatility	4.38	Liquidity, Risk & Size

Source: IHS Markit

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Figure 1

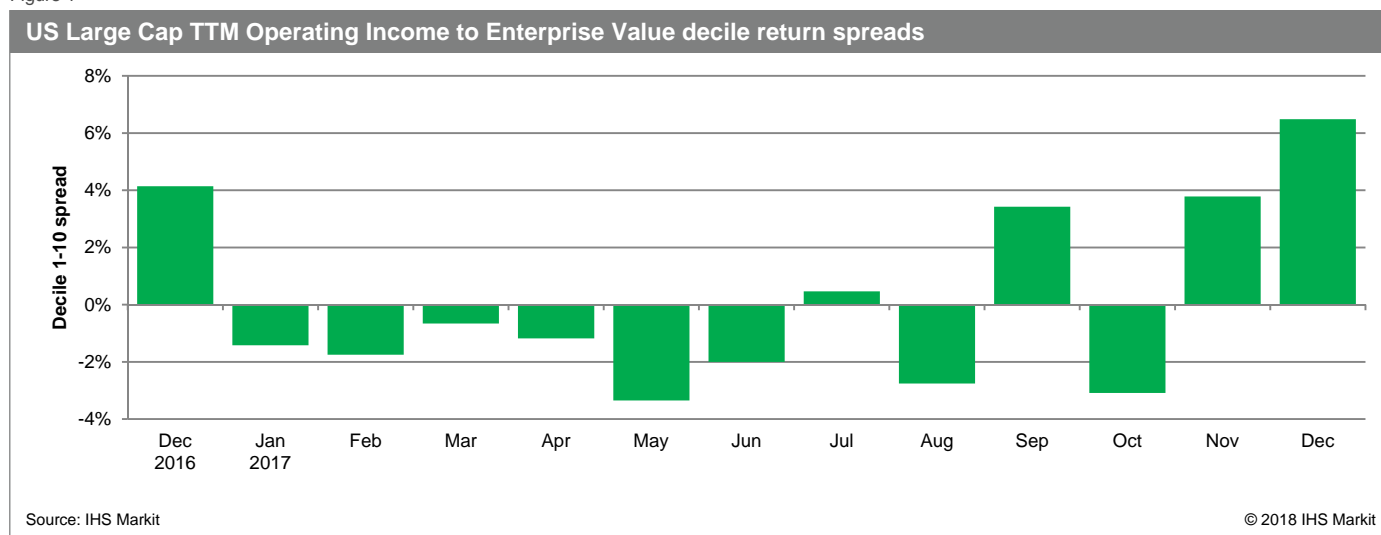


Table 3

US Large Cap bottom decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
1-Year Price Momentum Indicator	-6.17	Price Momentum
Fama-French Momentum	-5.86	Price Momentum
Second Preceding 6-month Return	-5.76	Price Momentum
Slope of 52 Week Price Trend Line	-5.67	Price Momentum
30-75 Week Stock Price Ratio	-5.59	Price Momentum
9-Month Active Return with 1-Month Lag	-5.20	Price Momentum
Product of Beta and Sigma	-5.15	Liquidity, Risk & Size
Std Dev of FY2 EPS Estimates-to-Price	-5.11	Earnings Momentum
Std Dev of FY1 EPS Estimates-to-Price	-4.95	Earnings Momentum
At the Money Call Option Implied Volatility	-4.88	Liquidity, Risk & Size

Source: IHS Markit

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US Small Cap

Top performing factors for small caps closely mimicked that of large caps with valuation, with investors especially rewarding companies with cheap EBITDA multiples (Table 4). Leading 12 Month EBITDA/EV (5.40%) posted the strongest spread with the majority of the signal content focused at the tails, though with a clear demarcation at the midpoint differentiating positive/negative average returns for the top/bottom five deciles (Figure 2). The weakest performers (Table 5), on the other hand, did not align as closely with large caps, but rather captured a general leaning toward firms with more volatile fundamentals and pricing, represented by measures such as 3-yr MAD of TTM Net Income (-5.00%), 2-Year Trough Operating Margin (-4.20%), Stability of 3-yr TTM Cash Flow (-4.05%), FY2 EPS Forecast Dispersion (-3.82%) and 24-Month Value at Risk (-3.63%).

Table 4

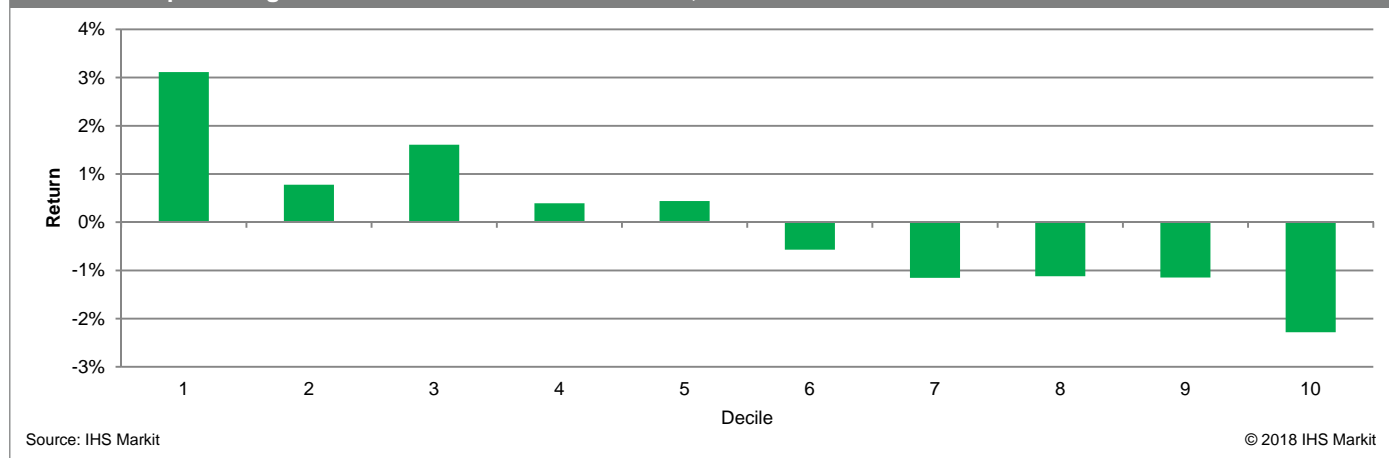
US Small Cap top decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
Leading 12 Month EBITDA/ EV	5.40	Deep Value
TTM Operating Income to Enterprise Value	5.21	Deep Value
TTM EBITDA-to-Enterprise Value	5.15	Deep Value
Time Weighted EBITDA/ EV	4.36	Deep Value
TTM EBITDA-to-Price	4.35	Deep Value
TTM Operating Cash Flow-to-Price	4.22	Deep Value
Time Weighted Cash Yield	4.05	Deep Value
Leading 12-Month Median Earnings Yield	4.05	Deep Value
Leading 12-Month Mean Earnings Yield	3.98	Deep Value
5-yr Relative TTM Oper Cash Flow-to-Price	3.95	Relative Value
Net Cash to Equity	3.91	Liquidity, Risk & Size
Time Weighted Earnings Yield	3.89	Deep Value
5-yr Relative TTM Free Cash Flow-to-Price	3.87	Relative Value
Net Current Assets-to-Price	3.76	Deep Value
TTM Cash Flow-to-Price	3.66	Deep Value

Source: IHS Markit

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Figure 2

US Small Cap Leading 12 Month EBITDA/EV decile returns, Dec 2017

Source: IHS Markit

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Table 5

US Small Cap bottom decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
Net # of Revisions for Fiscal QTR 1	-5.19	Earnings Momentum
3-yr MAD of TTM Net Income	-5.00	Liquidity, Risk & Size
Change in TTM Sales vs. EPS	-4.57	Earnings Quality
2-Year Trough Operating Margin	-4.20	Management Quality
Stability of 3-yr TTM Cash Flow	-4.05	Historical Growth
3-Year Trough Operating Margin	-3.90	Management Quality
FY2 EPS Forecast Dispersion	-3.82	Earnings Momentum
Product of TTM FCF Yield and Forward ROE	-3.79	Earnings Momentum
Capital Expenditure-to-Total Assets	-3.65	Management Quality
24-Month Value at Risk	-3.63	Price Momentum

Source: IHS Markit

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Europe

The outlook for the eurozone manufacturing sector remained positive at the end of 2017, with the December PMI at a series-record high of 60.6, up from 60.1 in November. Underpinning the strong headline PMI were near-record increases in output and new orders. The upturn was again broad based, led by Austria, Germany and the Netherlands. The positive economic backdrop helped push stocks to their best year since 2013.

Like their counterparts across the pond, developed European markets favored long-term price reversal and valuation metrics in December (Table 6). 60-Month Active Return with 1-Month Lag (4.23%) led factor performance, posting its strongest spread since the same month the prior year (Figure 3), indicative of an investor preference for stocks which have generally missed out on the bull market run. Relative Value was also the more highly rewarded value-specific theme, with Industry Relative TTM Oper Cash Flow-to-Price (2.91%) and 5-yr Relative Leading 12-Month Earnings Yield (2.38%) the top measures. From a technical perspective, investors were also willing to move out on the pricing risk curve, with factors including Regression Error of 60-Month CAPM (-3.57%), 24-Month Residual Return Variance (-3.54%) and Stock Return Volatility (-3.45%) among the weakest performers for the month (Table 7).

Table 6

Developed Europe top decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
60-Month Active Return with 1-Month Lag	4.23	Price Momentum
Abnormal Capital Investment	3.46	Management Quality
Average Monthly Trading Volume-to-Market Cap	3.43	Liquidity, Risk & Size
Natural Logarithm of Closing Price	3.28	Liquidity, Risk & Size
36-Month Active Return with 1-Month Lag	3.22	Price Momentum
60-Month Alpha	3.20	Price Momentum
Industry Relative TTM Oper Cash Flow-to-Price	2.91	Relative Value
1-yr Chg in Price-adj TTM Free Cash Flow	2.86	Historical Growth
Latin America Sales Exposure	2.75	Macro
1-yr Change in Sales	2.66	Historical Growth
5-day Industry Relative Return	2.64	Price Momentum
60-Month Active Return with 12-Month Lag	2.40	Price Momentum
5-yr Relative Leading 12-Month Earnings Yield	2.38	Relative Value
TTM Operating Income to Enterprise Value	2.33	Deep Value
5-yr Relative TTM Sales-to-Price	2.31	Relative Value

Source: IHS Markit

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Figure 3

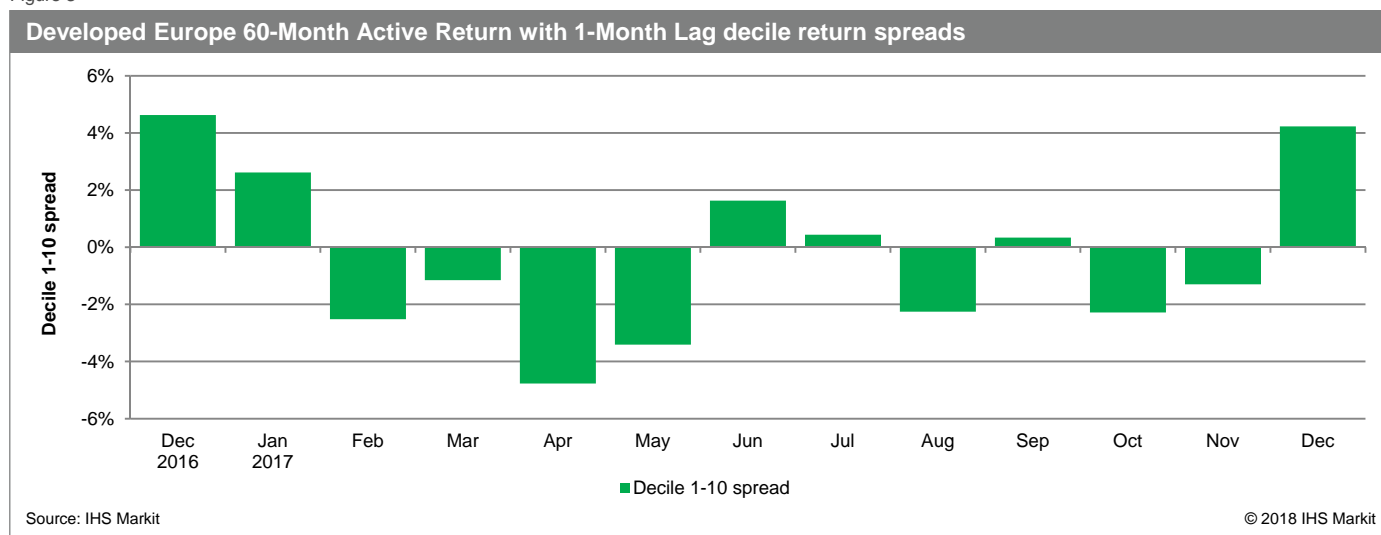


Table 7

Developed Europe bottom decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
Std Dev of FY2 EPS Estimates-to-Price	-3.58	Earnings Momentum
52-Week High	-3.57	Price Momentum
Regression Error of 60-Month CAPM	-3.57	Liquidity, Risk & Size
24-Month Residual Return Variance	-3.54	Price Momentum
50-200 Day Stock Price Ratio	-3.47	Price Momentum
Stock Return Volatility	-3.45	Liquidity, Risk & Size
FY2 EPS Forecast Dispersion	-3.42	Earnings Momentum
Market Cap per Analyst	-3.32	Liquidity, Risk & Size
Fama-French Momentum	-3.31	Price Momentum
Natural Logarithm of TTM Sales	-3.26	Liquidity, Risk & Size

Source: IHS Markit © 2018 IHS Markit

Asia-Pacific

Manufacturing operating conditions in the two largest Asian economies ended the year on an uptrend. Japan remained the stronger of the two, with the manufacturing PMI increasing to 54.0 compared with 53.6 in November, a 46-month high supported by a sharp boost in order book volumes. The Caixin China General Manufacturing PMI also improved to 51.5 in December, up from 50.8 in November, its highest level seen for four months. Chinese stocks were the clear winners for the year, and Japanese shares had their best year since 2013.

Relative Value and long-term price reversal metrics also made their way onto the list of top performing factors in the Developed Pacific exJapan universe in December (Table 8), represented by measures including 5-yr Relative Leading 12-Month Earnings Yield (3.31%) and 60-Month Alpha (3.23%). Laggards for the month (Table 9) include Ohlson Bankruptcy Score (-4.30%) and 24-Month Residual Return Variance (-3.54%), demonstrating an investor bias against financial and pricing risk. While capturing two different manifestations of investor risk aversion, these factors have moved in lockstep over the past four months with a 0.99 spread correlation, compared with a negative correlation of -0.49 over the prior nine months (Figure 4).

Japanese markets once again differed from their regional counterparts in regards to top performing factors in December (Table 10). In this case, Price Momentum was a positive indicator, occupying the top three spots with 6-Month Nominal Change in 36-Month Alpha (4.01%), 26-Week Relative Price Strength (3.68%) and 6-Month Nominal Change in 18-Month Alpha (3.63%). A time series display of 26-Week Relative Price Strength (Figure 5) demonstrates an increasing trend in optimism rounding out the year. At the opposite extreme, measures built on corporate fundamentals were among the weakest performers (Table 11) including 5-yr Relative Leading 12-Month Earnings Yield (-3.23%), NOPAT Margin (-2.81%) and 5-yr Relative TTM Dividend Yield (-2.80%).

Table 8

Developed Pacific exJapan top decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
Current Cash Flow Debt Coverage Ratio	3.86	Liquidity, Risk & Size
1-yr Change in Sales	3.66	Historical Growth
Lagged Inverse of PEG Ratio	3.39	Earnings Momentum
5-yr Relative Leading 12-Month Earnings Yield	3.31	Relative Value
60-Month Alpha	3.23	Price Momentum
Short Concentration Ratio	3.07	Short Sentiment
EBITDA-to-Debt	2.92	Liquidity, Risk & Size
Operating Cash Flow Ratio	2.89	Liquidity, Risk & Size
On Loan Value Concentration	2.80	Short Sentiment
Change in QTR SG&A Expenses vs. Sales	2.80	Earnings Quality
60-Month Active Return with 12-Month Lag	2.80	Price Momentum
Cash Earnings Return On Equity	2.75	Management Quality
Year-over-Year Change in EBITDA-to-Debt	2.49	Liquidity, Risk & Size
Profitability Ratio	2.48	Management Quality
Yearly TTM Total Sales Growth Rate	2.45	Historical Growth

Source: IHS Markit

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Table 9

Developed Pacific exJapan bottom decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
Ohlson Bankruptcy Score	-4.30	Liquidity, Risk & Size
24-Month Residual Return Variance	-3.54	Price Momentum
FY1 EPS Estimates Dispersion	-3.45	Earnings Momentum
3-yr Compound Annual FCF Growth	-3.34	Historical Growth
Natural Logarithm of Total Assets	-3.21	Liquidity, Risk & Size
FY2 EPS Forecast Dispersion	-3.14	Earnings Momentum
Natural Logarithm of TTM Sales	-2.91	Liquidity, Risk & Size
Std Dev of FY1 EPS Estimates-to-Price	-2.81	Earnings Momentum
Std Dev of FY2 EPS Estimates-to-Price	-2.69	Earnings Momentum
52-Week High	-2.61	Price Momentum

Source: IHS Markit

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Figure 4

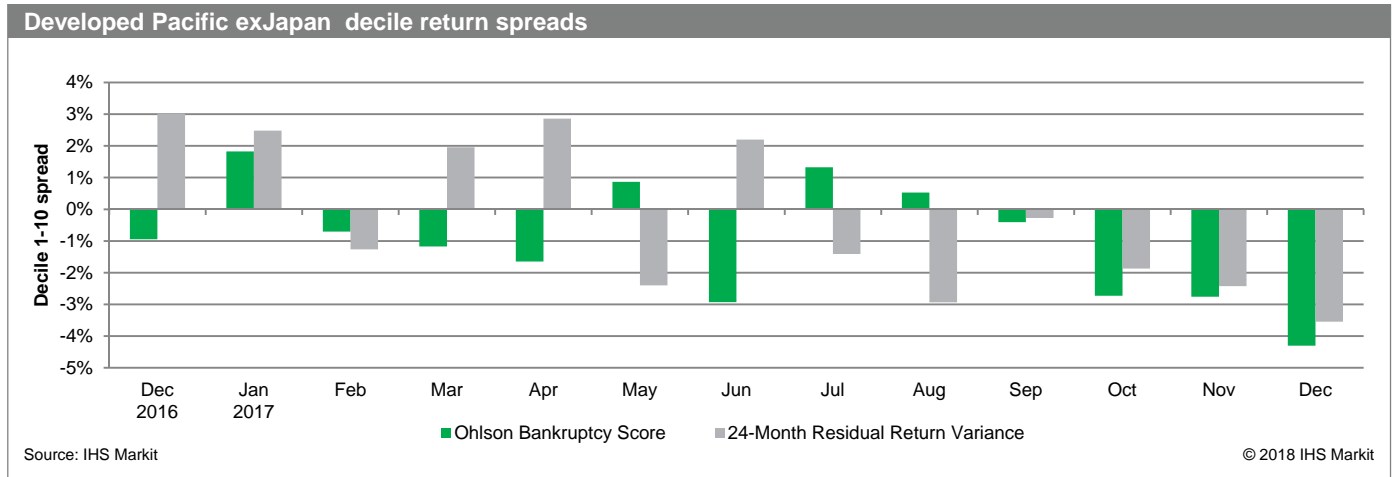


Table 10

Japan Standard Cap top decile return spread factor performance, Dec 2017			
Factor	Decile spread (%)	Factor group	
6-Month Nominal Change in 36-Month Alpha	4.01	Price Momentum	
26-Week Relative Price Strength	3.68	Price Momentum	
6-Month Nominal Change in 18-Month Alpha	3.53	Price Momentum	
3-M Revision in FY2 EPS Forecasts: Dispersion Relative	3.45	Earnings Momentum	
Slope of 5-yr TTM EPS Trend Line	2.94	Historical Growth	
Industry-adjusted Doubtful Account Receivables	2.94	Earnings Quality	
Industry Relative TTM Sales-to-Price	2.92	Relative Value	
Basic Defensive Interval	2.90	Liquidity, Risk & Size	
Fixed Assets Turnover Ratio	2.85	Management Quality	
TTM Sales-to-Price	2.77	Deep Value	
Time Weighted Sales Yield	2.67	Deep Value	
Equity Turnover Ratio	2.62	Management Quality	
Leading 12 Month Sales Yield	2.61	Deep Value	
12-Month Active Return with 1-month Lag	2.49	Price Momentum	
Natural Logarithm of Closing Price	2.46	Liquidity, Risk & Size	

Source: IHS Markit

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Figure 5

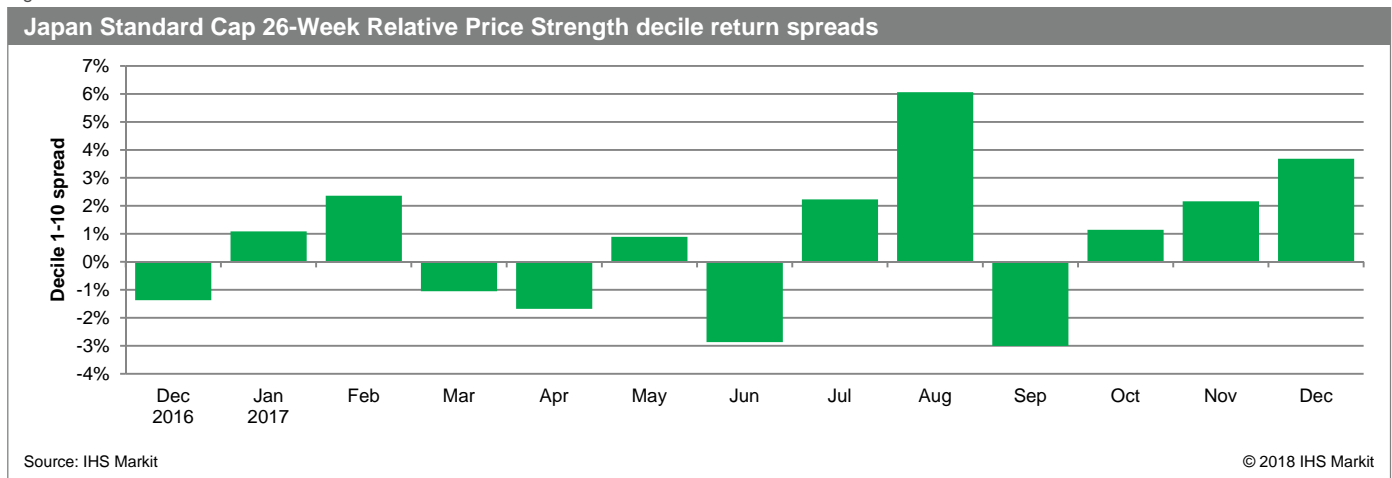


Table 11

Japan Standard Cap bottom decile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
5-yr Relative Leading 12-Month Earnings Yield	-3.23	Relative Value
NOPAT Margin	-2.81	Management Quality
5-yr Relative TTM Dividend Yield	-2.80	Relative Value
5-Year Dividend Growth Rate	-2.71	Historical Growth
3-yr Change in Price-adj TTM EPS	-2.53	Historical Growth
3-yr Change in Assets-adj TTM EPS	-2.53	Historical Growth
Market Cap per Analyst	-2.49	Liquidity, Risk & Size
Distress Measure	-2.44	Liquidity, Risk & Size
Shareholder Payout to Gross Profit	-2.39	Management Quality
5-yr Relative TTM Earnings-to-Price	-2.33	Relative Value

Source: IHS Markit

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Emerging Markets

We round out our report with a review of December's top (Table 12) and bottom (Table 13) performing factors in emerging markets. Factors which outperformed include Reinvestment Rate (3.00%) and Slope of 52 Week Price Trend Line (2.71%), among others. On the other hand, US dollar currency exposure was a negative indicator for the month, as represented by North America Sales Exposure (-1.93%) and US Dollar Value Sensitivity (-178%). Both factors have performed poorly over the past year (Figure 6) with hit rates (CUSUMs) of 54% (-6.9%) and 31% (-8.1%), respectively.

Table 12

Emerging Markets top quintile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
Latin America Sales Exposure	3.54	Macro
Reinvestment Rate	3.00	Historical Growth
Sustainable Growth Rate	3.00	Historical Growth
Cash-to-Sales	2.78	Management Quality
Slope of 52 Week Price Trend Line	2.71	Price Momentum
Slope of 66 Week Price Trend Line	2.64	Price Momentum
Net Current Assets-to-Price	2.58	Deep Value
Cash Earnings Return On Equity	2.56	Management Quality
Industry-adjusted 12-month Relative Price Strength	2.52	Price Momentum
Net Cash to Equity	2.47	Liquidity, Risk & Size
Change in TTM EPS vs. Oper Cash Flows	2.44	Earnings Quality
Return on Invested Capital	2.44	Management Quality
EMEA Sales Exposure	2.36	Macro
1-Year Price Momentum Indicator	2.20	Price Momentum
39-Week Return with 4-week Lag	2.14	Price Momentum

Source: IHS Markit

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Table 13

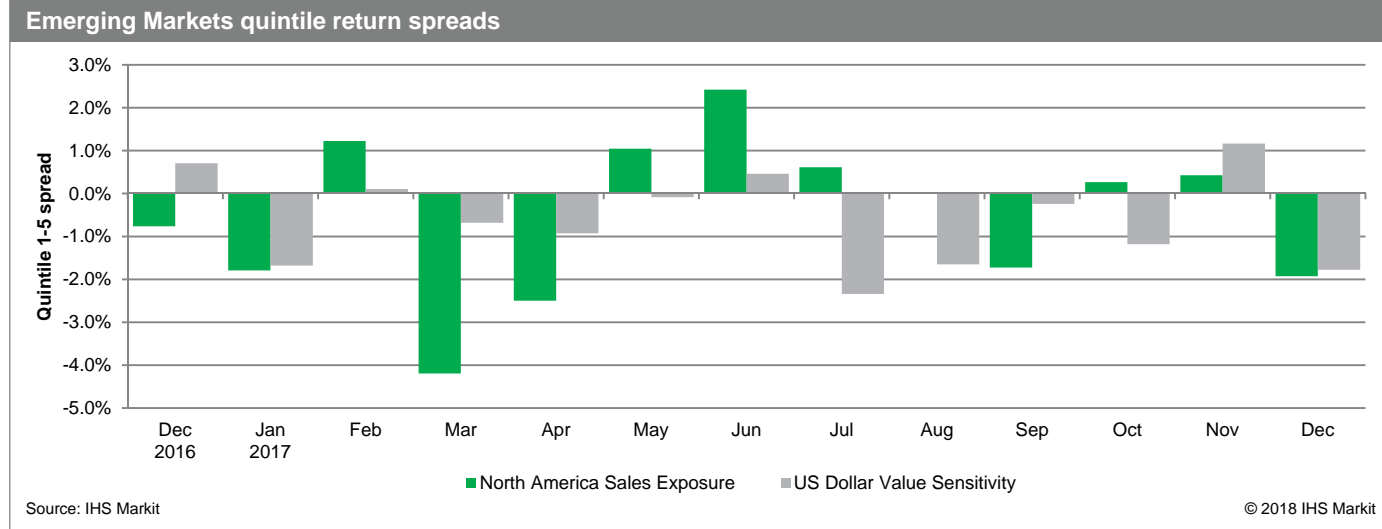
Emerging Markets bottom quintile return spread factor performance, Dec 2017

Factor	Decile spread (%)	Factor group
Net Debt to EBITDA	-2.43	Management Quality
4-Year Change in the Average Trading Volume	-2.18	Price Momentum
Price Above Last 260-day Lowest Trading Price	-2.12	Price Momentum
1-Month Stock Return Interquartile Range	-2.08	Liquidity, Risk & Size
North America Sales Exposure	-1.93	Macro
US Dollar Value Sensitivity	-1.78	Macro
Interest Coverage	-1.72	Liquidity, Risk & Size
20-Day Volume Volatility to Price Volatility	-1.72	Liquidity, Risk & Size
1-Month Realized Stock Return Volatility	-1.67	Liquidity, Risk & Size
Acquisition Multiple	-1.62	Deep Value

Source: IHS Markit

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Figure 6



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