

Equity market uncertainty intensifies

March 2020

Research Signals

March's daily roller coaster ride in equity markets amid the growing coronavirus panic, which we **recounted** in a series of weekly factor performance reports, included an end to the near 11-year bull market, followed by a quick snapback, as volatility reached levels in excess of the financial crisis. As investors grappled with the unknown impact on the global economy in both the near term and long term, many regional markets recorded their worst quarterly loss since the financial crisis. While there was a ray of hope from a slight rise in the J.P.Morgan Global Manufacturing PMI, this was almost entirely due to a stabilization in the China PMI from its severe downturn in February. In the face of the unknown, investors sought the safety of low risk trades, while socially distancing from value stocks (Table 1).

- US: Among large caps, 60-Month Beta outperformed Book-to-Market by a 37.4 percentage point spread, the highest outperformance in our factor history
- Developed Europe: Investors favored high momentum names, gauged by Rational Decay Alpha, but tempered the trade with low risk stocks, measured by 60-Month Beta
- Developed Pacific: High quality firms, such as those with high Fixed Assets Turnover Ratio, outperformed, while dividend payers struggled, as confirmed by Industry Relative TTM Dividend Yield
- Emerging markets: Underperformance to 5-day Industry Relative Return, a short-term price reversal metric and the weakest performing signal for the month, indicates that investors chased near-term winners higher

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Table 1

Global factor quantile return spread performance snapshot, Mar 2020

Factor	Factor Group	US Large Cap	US Small Cap	Developed Europe	Developed Pacific ex Japan	Japan Standard Cap	Emerging Markets
Book-to-Market		-19.72	-9.67	-17.87	-7.08	0.78	-3.09
Forward 12-M EPS-to-Enterprise Value	Deep Value	-4.70	-9.28	-7.65	-2.01	0.83	2.44
TTM EBITDA-to-Enterprise Value		-10.75	-12.30	-6.36	-4.39	1.94	-1.19
TTM Free Cash Flow-to-Enterprise Value		3.19	-4.85	-4.22	1.17	3.60	4.01
Industry Relative Leading 4-QTRs EPS to Price	Relative Value	-6.65	-7.97	-15.62	-2.26	0.95	0.88
Industry Relative TTM Dividend Yield		2.02	-4.54	-6.58	-11.20	-8.83	3.82
Fixed Assets Turnover Ratio	Management Quality	6.27	-1.23	1.43	7.38	5.10	-4.48
Inventory Turnover Ratio		-6.85	-3.86	-5.94	-5.41	1.89	2.36
Net Operating Asset Turnover		7.27	-5.27	-2.89	4.53	9.06	2.91
Change in Accruals to Assets	Earnings Quality	-4.14	-6.02	-1.30	0.57	-2.90	2.01
Change in TTM COGS vs. Inventory Level		4.75	-8.84	3.82	-5.14	6.09	3.96
Change in TTM Sales vs. Accounts Receivable		-0.01	-1.46	-1.12	4.78	-3.64	-1.55
Working Capital Accruals		2.24	-0.72	1.82	-1.55	2.20	-2.50
1-yr Growth in TTM Free Cash Flow		5.35	-1.26	0.20	1.34	2.15	2.59
Reinvestment Rate	Historical Growth	9.61	-9.45	3.78	1.90	3.30	-2.94
Average Monthly Trading Volume-to-Market Cap	Liquidity, Risk & Size	-19.40	-12.46	-11.73	-8.25	-4.25	-4.18
60-Month Beta		17.71	11.37	16.43	5.27	12.68	8.45
Asset Quality Index		-1.27	-6.57	0.46	1.20	0.02	-2.17
Operating Leverage		1.14	-2.24	-2.46	-1.74	-2.36	-0.91
Natural Logarithm of Market Capitalization		-18.64	-9.47	-8.59	-9.08	1.63	-2.43
2-Year Ahead EPS Growth	Earnings Momentum	-13.66	-3.01	-7.05	-0.42	-11.22	-7.26
3-M Revision in FY2 EPS Forecasts		8.04	6.48	1.76	1.10	5.66	2.36
Real Earnings Surprise		6.64	-3.88	0.70	2.53	3.73	-0.18
24-Month Value at Risk	Price Momentum	16.10	5.04	11.71	-9.89	3.66	9.94
5-day Industry Relative Return		-14.92	-8.67	-8.69	-8.64	-10.48	-10.39
Industry-adjusted 12-month Relative Price Strength		7.57	4.17	4.52	-1.60	-0.49	3.25
Rational Decay Alpha		16.62	9.59	12.78	-0.22	2.12	-0.64
Demand Supply Ratio	Short Sentiment	8.63	2.94	-2.56	-7.69	0.61	4.26
Implied Loan Rate		3.76	0.41	-0.94	-5.01	4.51	2.96

Source: IHS Markit

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United States

US Large Cap

Output and new orders at US manufacturing firms declined at the fastest pace since August 2009 amid the COVID-19 outbreak. The March PMI posted at 48.5, down from 50.7 in February, the weakest pace since last August. Fears surrounding the length of shutdowns and a slow recovery period led to the lowest confidence since data collection for the series began in July 2012. In equity markets, volatility in March saw the near 11-year bull market run officially end followed by a sharp 3-day bounce back which ended the shortest bear market in history, but in the end stocks recorded their worst quarter since the final quarter of 2008.

Momentum and value signals remained key drivers of stock market performance for a third straight month in March, based on top (Table 2) and bottom (Table 3) performing factors, respectively. However, in this case, Earnings Momentum and price reversal metrics took over the lead at the furthest extremes, rather than Price Momentum and Deep Value measures, led by Std Dev of FY1 EPS Estimates-to-Price (27.28%) and 60-Month Alpha (-26.76%). We also highlight some other factors of interest with robust March performance (Figure 1), including Debt to Market Cap (25.86%) and 60-Month Beta (17.71%) as well as Credit Risk (16.42%), a factor that is typically not covered in these publications due to low coverage and was just shy of finishing among the top performers, but provides interesting insights into the current environment. While each of these risk measures have outperformed each month this year, March saw a particularly large surge in these safety trades to the highest levels since February 2000, December 2002 and the start of the factor history in February 2002, respectively.

Table 2

US Large Cap top decile return spread factor performance, Mar 2020

Factor	Decile spread (%)	Factor group
Std Dev of FY1 EPS Estimates-to-Price	27.28	Earnings Momentum
Std Dev of FY2 EPS Estimates-to-Price	26.58	Earnings Momentum
Debt to Market Cap	25.86	Liquidity, Risk & Size
52-Week High	22.74	Price Momentum
18-Month Active Return with 1-Month Lag	21.33	Price Momentum
Market Cap per Analyst	20.64	Liquidity, Risk & Size
TTM Capital Expenditures-to-Price	20.20	Deep Value
24-Month Active Return with 1-Month Lag	19.79	Price Momentum
FY1 EPS Estimates Dispersion	19.12	Earnings Momentum
26-Week Relative Price Strength	18.13	Price Momentum
Growth Duration	17.79	Liquidity, Risk & Size
60-Month Beta	17.71	Liquidity, Risk & Size
Cash Flow Leverage	17.45	Liquidity, Risk & Size
FY2 EPS Forecast Dispersion	17.37	Earnings Momentum
30-75 Week Stock Price Ratio	17.15	Price Momentum

Source: IHS Markit

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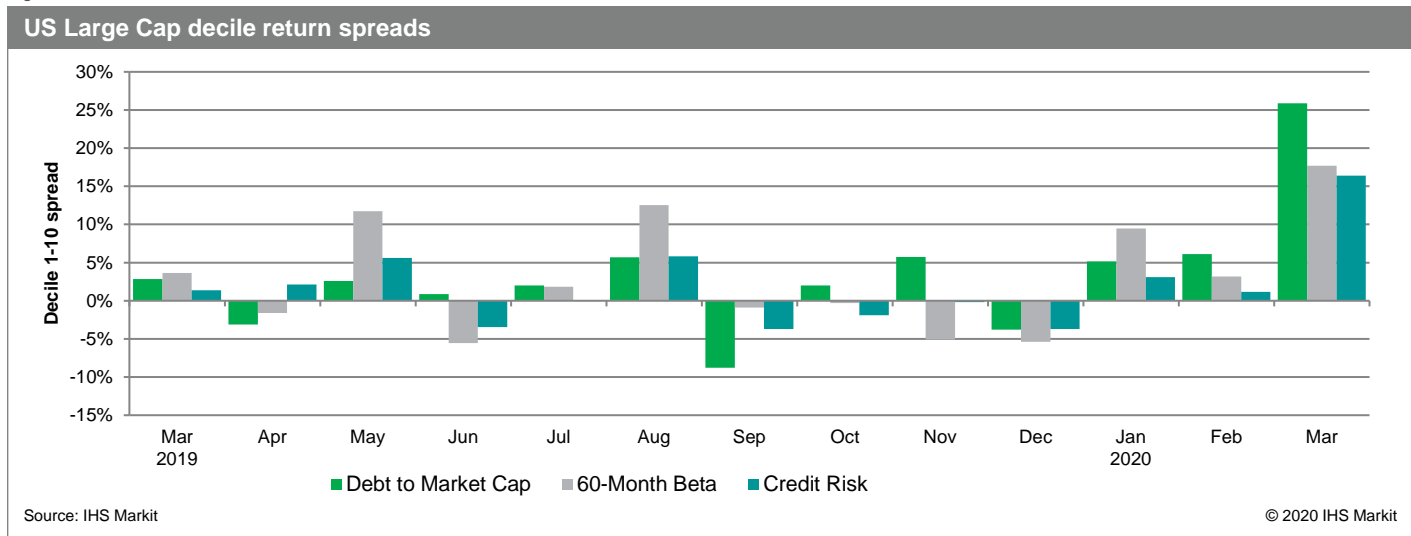
Table 3

US Large Cap bottom decile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
60-Month Alpha	-26.76	Price Momentum
60-Month Active Return with 12-Month Lag	-24.70	Price Momentum
Market Leverage	-24.17	Liquidity, Risk & Size
Leading 12 Month Regular Dividend Yield	-23.83	Dividend Forecast
2-Month Active Return	-23.76	Price Momentum
Leading 12 Month Total Dividend Yield	-23.37	Dividend Forecast
Graham Number Fair Value Premium	-22.94	Deep Value
TTM Dividend Yield	-22.89	Deep Value
1-Month Active Return	-22.47	Price Momentum
36-Month Active Return with 1-Month Lag	-22.44	Price Momentum

Source: IHS Markit

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Figure 1



Source: IHS Markit

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US Small Cap

While momentum and value styles were once again prominent among top (Table 4) and bottom (Table 5) factor performers for small caps, as with large caps in March, broader representation across other styles was once again seen for this market cap group. Debt to Market Cap (25.22%) was the top performer, attaining a record spread over our available history since 1990. Time Weighted Earnings Revision (18.95%) followed behind, representing the Earnings Momentum group which occupied half of the top 10 spots and also achieving a record spread over factor history since 1989. Taking a look at the distribution of returns across deciles (Figure 2), we find that more systematic trading toward the least leveraged firms is seen for Debt to Market Cap, based on a nearly monotonic distribution, while consideration of analyst outlook appears to be more concentrated at the tails. On the other hand, dividend payers struggled last month, sending factors such as Leading 12 Month Regular Dividend Yield (-20.89%) to its weakest spread since we started tracking the factor in February 2011.

Table 4

US Small Cap top decile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
Debt to Market Cap	25.22	Liquidity, Risk & Size
Time Weighted Earnings Revision	18.95	Earnings Momentum
TTM Capital Expenditures-to-Price	17.58	Deep Value
Attention Span Ratio	14.77	Management Quality
Std Dev of FY1 EPS Estimates-to-Price	14.69	Earnings Momentum
Advertising Intensity	14.68	Management Quality
Product of TTM FCF Yield and Forward ROE	14.58	Earnings Momentum
Stability of 5-yr TTM Earnings per Share	14.41	Historical Growth
Averaged Last 6-M EPS Revisions for FY2	14.28	Earnings Momentum
Std Dev of FY2 EPS Estimates-to-Price	13.85	Earnings Momentum
18-Month Active Return with 1-Month Lag	13.77	Price Momentum
Operating Liability Leverage	13.55	Management Quality
24-Month Active Return with 1-Month Lag	12.97	Price Momentum
Averaged Last 6-M EPS Revisions for FY1	12.80	Earnings Momentum
39-Week Return with 4-week Lag	11.92	Price Momentum

Source: IHS Markit

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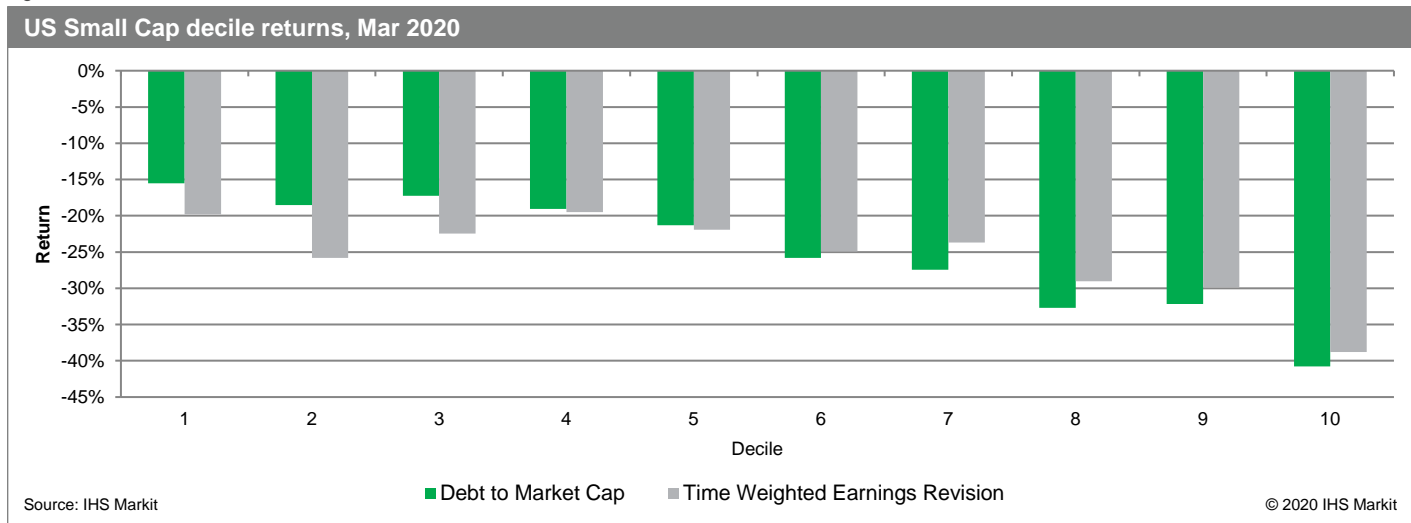
Table 5

US Small Cap bottom decile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
Market Leverage	-26.08	Liquidity, Risk & Size
Net Cash to Equity	-23.44	Liquidity, Risk & Size
Current Liabilities-to-Price	-22.05	Liquidity, Risk & Size
Time Weighted Sales Yield	-21.77	Deep Value
Net Debt Ratio	-21.76	Management Quality
Leading 12 Month Sales Yield	-21.73	Deep Value
Leading 12 Month Regular Dividend Yield	-20.89	Dividend Forecast
Total Debt to Total Assets	-20.54	Liquidity, Risk & Size
Leading 12 Month Total Dividend Yield	-20.43	Dividend Forecast
Price-to-Total Assets	-20.29	Deep Value

Source: IHS Markit

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Figure 2



Source: IHS Markit

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Europe

COVID-19 related shutdowns drove output and orders lower in the euro area manufacturing sector, sending the PMI down to 44.5 in March, from 49.2 in February, the lowest reading for 92 months and the fourteenth month below the 50.0 no change mark. Italy saw the sharpest deterioration in operating conditions, followed by Greece, and only the Netherlands recorded a PMI in expansion territory, though just marginally. While survey participants' confidence about the future sank to a historical low, equity investors lifted stocks to double digit gains from their lows on 18 March, but stocks remained sharply negative for the month and quarter.

Like US markets, momentum and value measures occupied the list of top (Table 6) and bottom (Table 7) performing factors, respectively, in developed Europe equity markets in March. However, the risk-off trade was once again a more prevalent theme as captured by 60-Month Beta (16.43%) and Debt to Market Cap (19.42%) which took over the lead. Altman Z Score, sorted to favor high bankruptcy risk, similarly represents this trade. The surge in magnitude, particularly with respect to the financial health of firms, was more prevalent in March (Figure 3), as evidenced by the month-on-month percentage point change in spread of 16.8 for Debt to Market to a record level and -14.8 for Altman Z Score to its lowest spread since February 2000. This compares with the low beta trade which was a repeat top performer with a month-on-month percentage point change of lower magnitude at 10.5 to a level matched more recently in October 2008.

Table 6

Developed Europe top decile return spread factor performance, Mar 2020

Factor	Decile spread (%)	Factor group
Debt to Market Cap	19.42	Liquidity, Risk & Size
60-Month Beta	16.43	Liquidity, Risk & Size
24-Month Active Return with 1-Month Lag	16.41	Price Momentum
Std Dev of FY1 EPS Estimates-to-Price	16.08	Earnings Momentum
Std Dev of FY2 EPS Estimates-to-Price	15.55	Earnings Momentum
52-Week High	14.51	Price Momentum
Product of Beta and Sigma	14.11	Liquidity, Risk & Size
Market Cap per Analyst	13.65	Liquidity, Risk & Size
1-Month Realized Stock Return Volatility	13.55	Liquidity, Risk & Size
20-Day Volume Volatility to Price Volatility	13.10	Liquidity, Risk & Size
Asia-Pacific Sales Exposure	12.89	Macro
Rational Decay Alpha	12.78	Price Momentum
North America Sales Exposure	12.72	Macro
Net Debt to EBITDA	12.55	Management Quality
18-Month Active Return with 1-Month Lag	12.34	Price Momentum

Source: IHS Markit

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Table 7

Developed Europe bottom decile return spread factor performance, Mar 2020

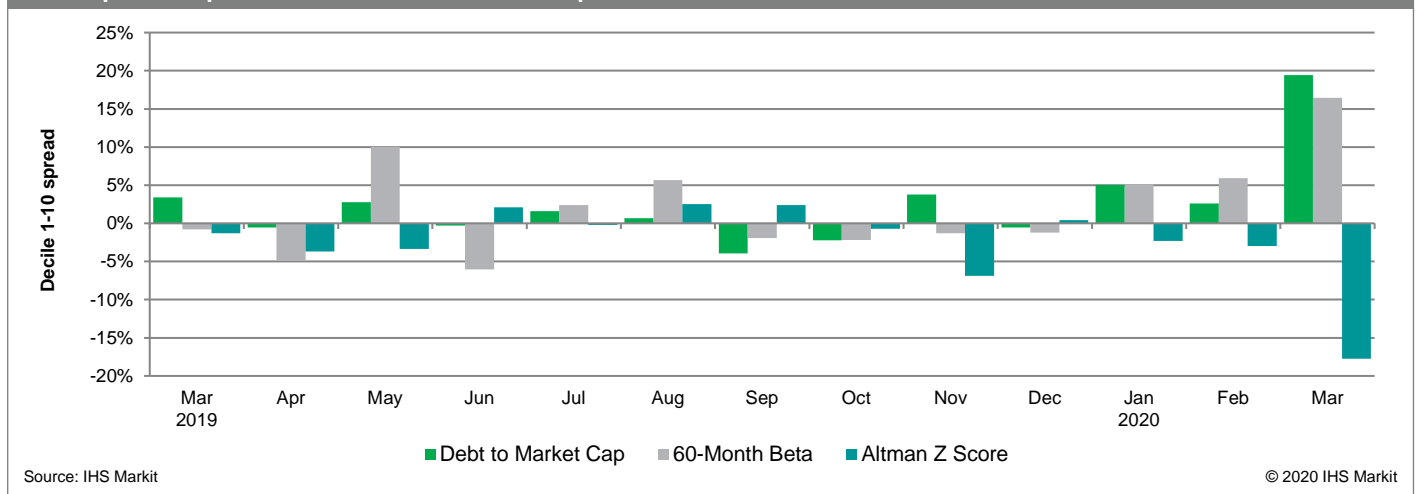
Factor	Decile spread (%)	Factor group
Time Weighted Book Yield	-23.69	Deep Value
Leading 12 Month Book Yield	-23.01	Deep Value
Current Liabilities-to-Price	-19.19	Liquidity, Risk & Size
Price-to-Total Assets	-18.87	Deep Value
Market Leverage	-18.62	Liquidity, Risk & Size
Book-to-Market	-17.87	Deep Value
Leading 12-Month Median Earnings Yield	-17.85	Deep Value
Altman Z Score	-17.76	Liquidity, Risk & Size
Time Weighted Cash Yield	-17.74	Deep Value
Time Weighted Earnings Yield	-17.43	Deep Value

Source: IHS Markit

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Figure 3

Developed Europe 60-Month Beta decile return spreads



Source: IHS Markit

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Asia-Pacific

Stark contrasts in manufacturing operating conditions in the two largest Asian economies of China and Japan were seen in March amid varying stages of the COVID-19 outbreak. After recording the lowest reading in February (40.3) since the survey began in April 2004, the China PMI rebounded to 50.1 in March, as more firms reopened after widespread shutdowns the prior month and business confidence held close to February's five-year high on hopes of a recovery in production over the next year. Conversely, manufacturing output in Japan fell at the sharpest rate since the aftermath of the April 2011 tsunami, with the PMI falling to 44.8 in March, from 47.8 in February, on aggressively reduced client demand across both domestic and external markets. Stocks in Asia dropped precipitously for the full quarter, with equities in Japan hit harder than in China

Factor performance in the Asia Pacific region diverged from that of other developed markets. In developed Pacific markets outside Japan, Management Quality measures were well represented on the list of top performing factors in March (Table 8). Net Debt to EBITDA (11.09%) is one such quality indicator which has demonstrated an increasing

trend in performance, capped by a doubling in spread last month (Figure 4). Conversely, high dividend payers were beaten down last month, as confirmed by Industry Relative TTM Dividend Yield (-11.20%).

Quality was also a positive indicator in Japan, as captured by measures such as TTM Gross Profit to Assets (15.01%) on the list of top performing factors in March (Table 10). Interestingly, we compare the positive performance of FY1 EPS Estimates Dispersion (13.71%) to that of 2-Year Ahead EPS Growth (-11.22%) which resided on the list of bottom performers (Table 11), where the relationship in decile return distributions reveals that investors sought agreement in analysts' near-term outlook, with much less faith in the 2-year outlook (Figure 5).

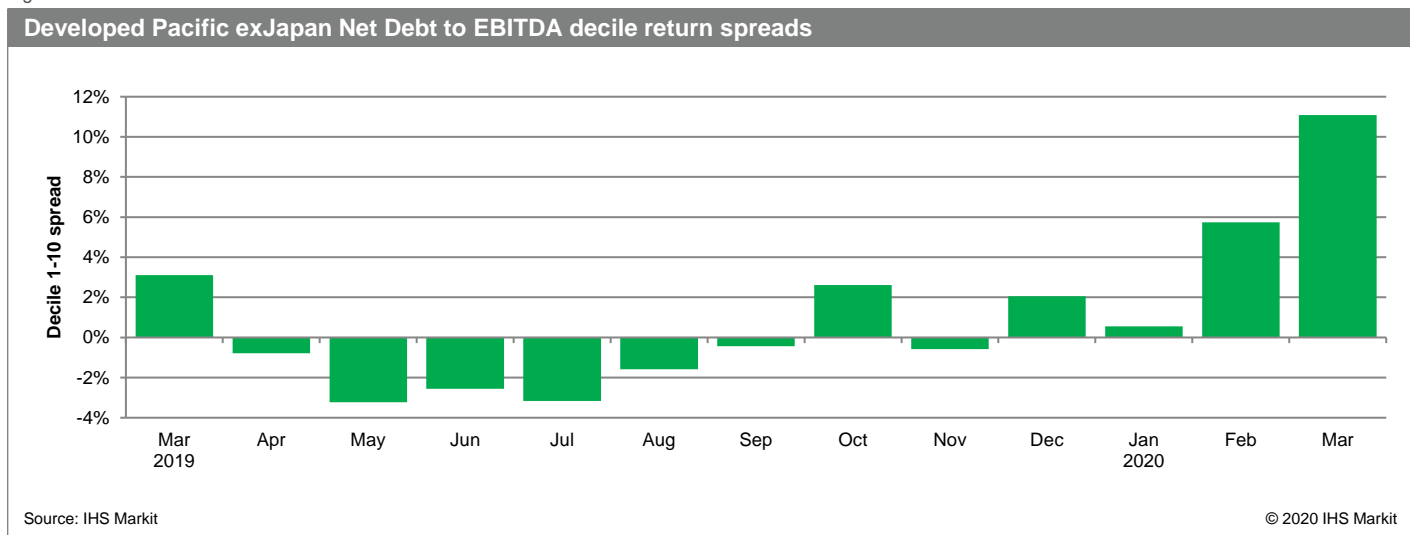
Table 8

Developed Pacific exJapan top decile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
Attention Span Ratio	13.50	Management Quality
Market Cap per Analyst	12.87	Liquidity, Risk & Size
Net Debt to EBITDA	11.09	Management Quality
Operating Liability Leverage	10.65	Management Quality
5-Year Dividend Growth Rate	9.15	Historical Growth
Time Weighted Earnings Revision Dispersion	8.70	Earnings Momentum
Change in Net Operating Assets	7.54	Management Quality
TTM Capital Expenditures-to-Price	7.43	Deep Value
Fixed Assets Turnover Ratio	7.38	Management Quality
6-Month Nominal Change in 36-Month Alpha	7.23	Price Momentum
Dividends- to-Cash Flow	6.16	Management Quality
Cash to Enterprise Value	6.13	Deep Value
1 Year Change in Gross Profit to Assets	5.98	Management Quality
YOY Chg in Acct Receivable to Current Assets	5.73	Management Quality
Yearly TTM Total Sales Growth Rate	5.70	Historical Growth

Source: IHS Markit

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Figure 4



Source: IHS Markit

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Table 9

Developed Pacific exJapan bottom decile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
14 Day Relative Strength Index	-11.74	Price Momentum
Industry Relative TTM Dividend Yield	-11.20	Relative Value
Leading 12 Month Regular Dividend Yield	-10.20	Dividend Forecast
Altman Z Score	-9.97	Liquidity, Risk & Size
24-Month Value at Risk	-9.89	Price Momentum
24-Month Residual Return Variance	-9.71	Price Momentum
Lending Supply	-9.21	Short Sentiment
Cash Cycle	-9.19	Management Quality
Stock Return Volatility	-9.14	Liquidity, Risk & Size
Leading 12 Month Total Dividend Yield	-9.10	Dividend Forecast

Source: IHS Markit

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Table 10

Japan Standard Cap top decile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
Trading Turnover Ratio	19.78	Liquidity, Risk & Size
Average Trading Volume in Preceding 6-month	18.50	Price Momentum
Basic Defensive Interval	16.20	Liquidity, Risk & Size
TTM Gross Profit to Assets	15.01	Management Quality
FY1 EPS Estimates Dispersion	13.71	Earnings Momentum
Std Dev of FY1 EPS Estimates-to-Price	13.51	Earnings Momentum
Dividend Coverage Ratio	13.28	Liquidity, Risk & Size
Interest Coverage	12.90	Liquidity, Risk & Size
60-Month Beta	12.68	Liquidity, Risk & Size
Cash-to-Sales	11.34	Management Quality
Retained Earnings-to-Total Assets	11.28	Management Quality
Capital Expenditures to Depreciation Linkage	10.95	Management Quality
FY2 EPS Forecast Dispersion	10.88	Earnings Momentum
Operating Liability Leverage	10.64	Management Quality
Total Coverage	10.63	Liquidity, Risk & Size

Source: IHS Markit

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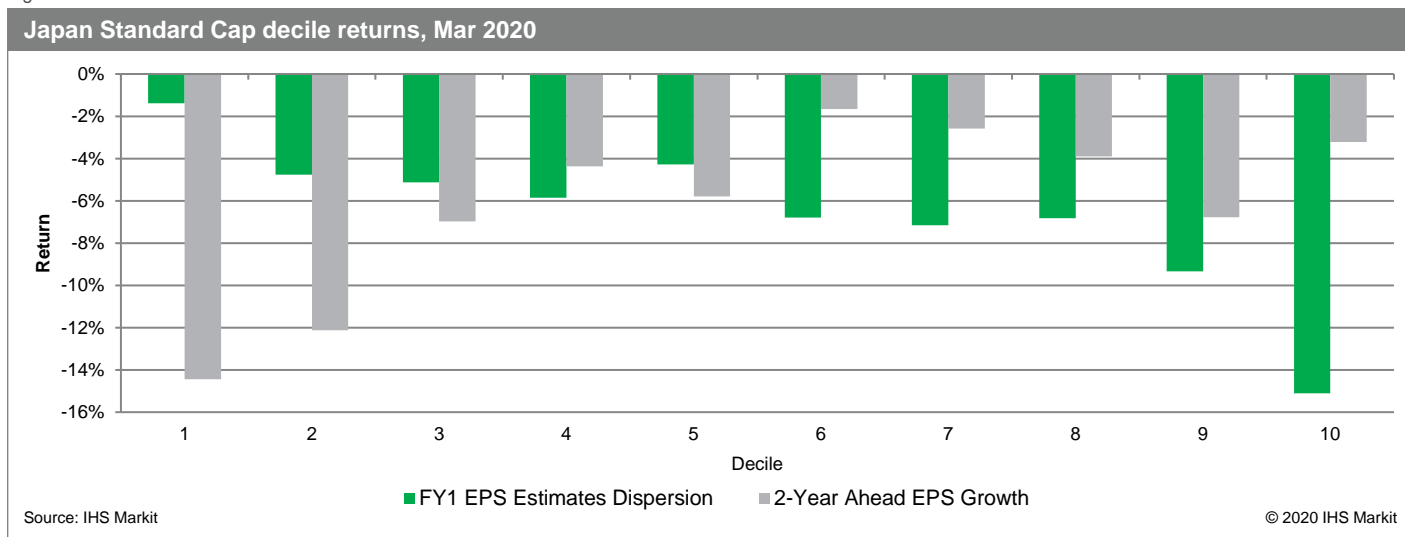
Table 11

Japan Standard Cap bottom decile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
EMEA Sales Exposure	-13.77	Macro
Industry-adjusted Doubtful Account Receivables	-12.66	Earnings Quality
2-Year Ahead EPS Growth	-11.22	Earnings Momentum
Capital Gearing Ratio	-10.50	Liquidity, Risk & Size
5-day Industry Relative Return	-10.48	Price Momentum
1-Month Active Return	-10.46	Price Momentum
Time Weighted Cash Yield	-9.58	Deep Value
Total Debt to Total Assets	-9.53	Liquidity, Risk & Size
2-Year Ahead EPS Growth Percentage Change	-9.51	Earnings Momentum
Oil Prices Sensitivity	-9.31	Macro

Source: IHS Markit

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Figure 5



Emerging Markets

We wrap up with a review of top (Table 12) and bottom (Table 13) performing factors in emerging markets in March. As with markets in the US and Europe, low risk and positive momentum were key themes among the most highly rewarded signals. Product of Beta and Sigma (12.92%), a combination of systematic and total risk, saw a 9.3 month-on-month percentage point upswing in decile spread (Figure 6), reaching the highest level since the financial crisis. Alternatively, short-term price reversal metrics such as 5-day Industry Relative Return (-10.39%), the weakest performing signal, lagged last month, suggesting that investors chased near-term winners higher.

Table 12

Emerging Markets top quintile return spread factor performance, Mar 2020		
Factor	Decile spread (%)	Factor group
Product of Beta and Sigma	12.92	Liquidity, Risk & Size
24-Month Residual Return Variance	11.69	Price Momentum
52-Week High	11.40	Price Momentum
Regression Error of 60-Month CAPM	11.23	Liquidity, Risk & Size
Stock Return Volatility	11.17	Liquidity, Risk & Size
24-Month Value at Risk	9.94	Price Momentum
CV of Prior 90-Day Closing Prices	9.10	Price Momentum
Distress Measure	9.07	Liquidity, Risk & Size
60-Month Beta	8.45	Liquidity, Risk & Size
20-Day Volume Volatility to Price Volatility	8.42	Liquidity, Risk & Size
1-Month Stock Return Interquartile Range	8.39	Liquidity, Risk & Size
1-Month Realized Stock Return Volatility	8.32	Liquidity, Risk & Size
Interest Coverage	8.01	Liquidity, Risk & Size
24-Month Active Return with 1-Month Lag	7.83	Price Momentum
Lending Supply	7.28	Short Sentiment

Source: IHS Markit

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Table 13

Emerging Markets bottom quintile return spread factor performance, Mar 2020

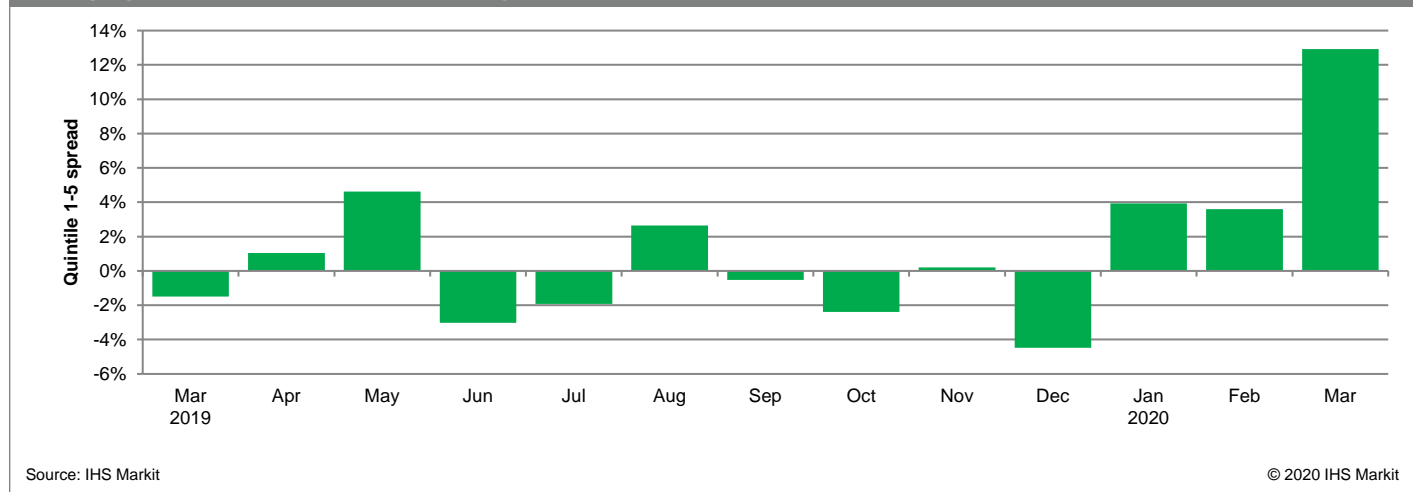
Factor	Decile spread (%)	Factor group
5-day Industry Relative Return	-10.39	Price Momentum
Dividends-to-Cash Flow	-10.23	Management Quality
Dividend Coverage Ratio	-8.13	Liquidity, Risk & Size
Net Fixed Assets to Long-term Debt	-7.97	Liquidity, Risk & Size
Net Debt Ratio	-7.82	Management Quality
Net Cash to Equity	-7.65	Liquidity, Risk & Size
1-Month Active Return	-7.50	Price Momentum
Market Leverage	-7.47	Liquidity, Risk & Size
2-Year Ahead EPS Growth	-7.26	Earnings Momentum
2-Month Active Return	-7.14	Price Momentum

Source: IHS Markit

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Figure 6

Emerging Markets Product of Beta and Sigma quintile return spreads



Source: IHS Markit

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