GLOBAL QUANT EQUITY BRIEFING: Q4 2018

WELCOME TO THE BRAVE NEW WORLD

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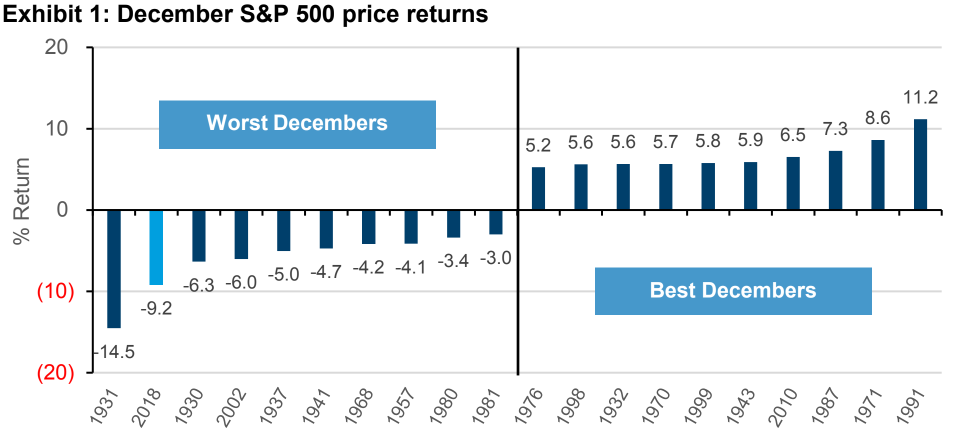
2018 was a year with extreme volatility as the S&P 500 posted a negative return for the first time in nine years. International markets did worse with double-digit losses. Heightened volatility came from a confluence of sources. For the year, momentum and high-quality factors had strong performance while value underachieved. If a revaluation continues, more volatility could be in store. Momentum, which has been a market driver for several years, is becoming increasingly expensive.

MARKET COMMENTARY

From a melt-up in stocks at the start of the year to a near meltdown towards the end, few will have fond memories of 2018. Last year marked the first time that the S&P 500 index posted an annual decline after rising in the first three quarters. In the fourth quarter, the S&P 500 plunged 14% to mark the worst quarter over the past decade. Much of that quarter's losses came during a turbulent December; the S&P 500 dropped more than 9% during the month, making this the worst December since 1931 and the biggest monthly loss since February 2009 (Exhibit 1). That doesn't even tell the whole story about how wild a ride December was for investors, though.

Exhibit 1: December S&P 500 price returns



Source: Bloomberg

At its low on Christmas Eve, the S&P 500 index was down more than 20% from its record high on an intraday basis, briefly entering bear market territory. The market came soaring back in the next session, however, with the Dow jumping 1,086 points on December 26 in its largest ever single-day point gain. Volatility was the common thread throughout the year:

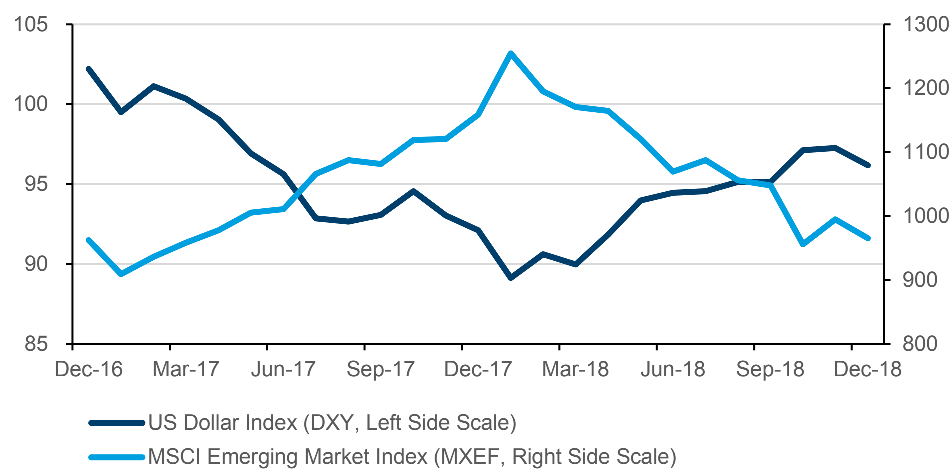
- **Q1 – A Market Melt-up and the Vol-mageddon**

  On the back of a generous tax cut on corporate profits and a synchronized global growth outlook, January 2018 was one of the best months for global equities since the Global Financial Crisis. But over subsequent weeks, much of January's rally quickly unraveled, as investors suddenly became worried about the threat of inflation and interest rates after a strong nonfarm payrolls release. Early February's market turmoil also adversely affected investors who bet against a rise in market volatility. Short-volatility trades had become popular, successfully squeezing profits out of the eerie calm that had overtaken stock markets in prior years. All "sure things" must come to an end, however, and those strategies imploded spectacularly on February 5 as the Dow plunged 1,175 points and traders rushed to implement protective puts on the S&P 500 index, leading to the VIX (CBOE Volatility Index) doubling in a matter of hours.

- **Q2 – A Dollar Rebound and the Emerging Markets' Trouble**

  After falling nearly 10% in 2017, the U.S. dollar continued to weaken into spring 2018. The currency rebounded sharply in the second quarter, as investors realized that interest rates were diverging in the wake of robust U.S. economic data, a hawkish Federal Reserve (Fed) and mounting trade wars. A resurgent dollar proved particularly painful for emerging markets, as many of them have large amounts of foreign-denominated debt.

Exhibit 2: US Dollar Index vs. MSCI Emerging Market Index (2017-2018)



Source: Bloomberg.

Additionally, countries including Turkey, Argentina and Pakistan have large twin deficits (combined budget and current-account gaps as a percentage of GDP) that require financing, with many not earning enough to meet those commitments. In the face of these issues, investors left emerging markets in a flight to safety. Consequently, a number of these countries saw their currencies fall to record-low levels and their stock markets fall into bear market territory (Exhibit 2).

- **Q3 – A Tale of Two Markets**

In the third quarter, U.S. equities were the place to be, as investors shifted their focus back to the strong economy and blockbuster corporate profits. The S&P 500 Index rose in each month of the quarter and closed with a 7.7% quarterly gain (including dividends)—one of the strongest quarters in many years. The rally was also broad-based, with every single S&P 500 sector generating positive returns. These strong returns were accompanied by a return to lower volatility. The S&P 500 Index didn’t have a single session in the third quarter where it closed with a 1% move, up or down. This contrasted with overseas markets, which struggled amid heightened political uncertainty, trade risks and slowdowns in their economic growth. For example, the MSCI Emerging Market Index had moves of 1% or more in 30% of the quarter's trading sessions and ended the quarter with a 2% loss.

- **Q4 – Risks Everywhere and December Mayhem**

Over the summer, markets climbed higher while investors shrugged off many worrisome signs. That mood started to change in October, as the yield on the benchmark 10-year Treasury note rose above 3.25%, a level not seen in more than seven years. Soft earnings releases from tech giants Amazon, Alphabet, Netflix and Apple also sent tremors across markets. Then came the oil crash, where crude prices dropped from a four-year high to a full-blown bear market in a matter of weeks. After the U.S., China, Japan and Europe all reported weaker-than-expected economic data, the yield curve flattened further—at one point, the gap between the 10-year Treasury yield and the 2-year yield narrowed to 11 basis points. A potential yield curve inversion added to the fear of an outright economic recession.

The “autopilot” message on “quantitative tightening” from the Fed and the government shutdown didn’t help, either. Whatever the factors responsible for the December tumult were, they were not good for the stock markets. As a reflection of investors’ jitteriness, the S&P 500 was up or down more than 1% nine times in December alone, compared to just eight times in all of 2017. The December sell-off was widespread across different geographies, styles and sectors, and the losses ranged from 2.7% to 12.7% (Exhibits 3 and 4).

Exhibit 3: Major Indices Returns in 2018

Index	December	Q4	2018
S&P 500	(9.0)	(13.5)	(4.4)
Dow Jones Industrial Average	(8.6)	(11.3)	(3.5)
NASDAQ Composite Index	(9.4)	(17.3)	(2.8)
Russell 1000	(9.1)	(13.8)	(4.8)
Russell 1000 Value	(9.6)	(11.7)	(8.3)
Russell 1000 Growth	(8.6)	(15.9)	(1.5)
Russell Mid-cap	(9.9)	(15.4)	(9.1)
Russell Mid-cap Value	(10.5)	(15.0)	(12.3)
Russell Mid-cap Growth	(9.1)	(16.0)	(4.8)
Russell 2000	(11.9)	(20.2)	(11.0)
Russell 2000 Value	(12.1)	(18.7)	(12.9)
Russell 2000 Growth	(11.7)	(21.7)	(9.3)
MSCI EAFE	(4.9)	(12.5)	(13.8)
MSCI Europe	(5.5)	(11.3)	(10.6)
MSCI Asia Pacific	(4.3)	(11.0)	(13.5)
MSCI Emerging Markets	(2.7)	(7.5)	(14.6)

Source: Bloomberg.

Exhibit 4: S&P 500 Sector Returns in 2018

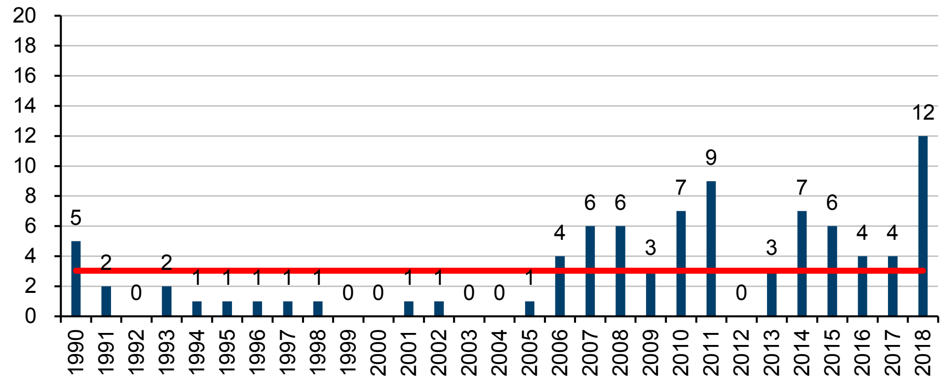
Index	December	Q4	2018
S&P 500 Energy	(12.7)	(23.8)	(18.1)
S&P 500 Materials	(6.9)	(12.3)	(14.7)
S&P 500 Industrials	(10.7)	(17.3)	(13.3)
S&P 500 Consumer Discretionary	(8.4)	(16.4)	0.8
S&P 500 Consumer Staples	(9.1)	(5.2)	(8.4)
S&P 500 Health Care	(8.6)	(8.7)	6.5
S&P 500 Financials	(11.3)	(13.1)	(13.0)
S&P 500 Info Tech	(8.5)	(17.3)	(0.3)
S&P 500 Communication Services	(7.3)	(13.2)	(12.5)
S&P 500 Utilities	(4.0)	1.4	4.1
S&P 500 Real Estate	(7.4)	(3.8)	(2.2)

Source: Bloomberg.

In terms of total return, the S&P 500 lost only 4.4% in 2018, which is not abnormal from a historical perspective. After all, the annualized standard deviation for the S&P 500 is 17% over the past nine decades. The year will, however, be remembered for its extreme volatility.

The Dow has swung 1,000 points in a single session only eight times in its history, and five of those took place in 2018. Additionally, the VIX jumped by 20% or more a dozen times, which is three times its historical average (Exhibit 5).

Exhibit 5: Percent of days with 20% or higher VIX increases



Source: Bloomberg.

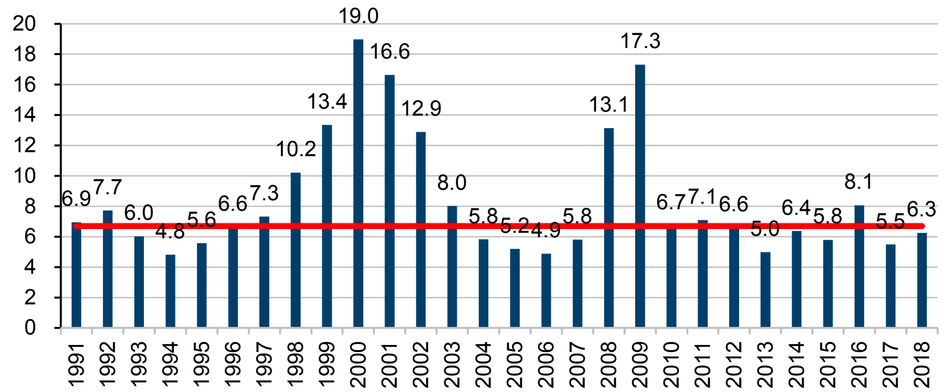
At the start of 2019, positive headlines around trade discussions with China and dovish Fed commentary provided some relief to market uncertainty. Many of the fundamental issues behind the December sell-off haven't gone away simply because the calendar turned. For example, in the current earnings season, 72 S&P 500 companies have issued profit warnings so far, and earnings growth rates have been revised lower by companies in all 11 S&P sectors. How much is the bad news been priced in the market? Is the worst completely behind us or yet to come? That's the question. In our view, the era of depressed market volatility and rates is over. As investors search for the new fair value for stocks and bonds in the new growth and rate environment, higher volatility will be their close companion.

Welcome to the brave new world. Better watch out.

FACTOR REVIEW

We didn’t see the same type of stomach-churning swings across factors as we did at the index and sector levels. Factor return volatility was roughly at the historical average (Exhibit 6).

Exhibit 6: Yearly standard deviation for quantitative factors’ quintile spreads.



Source: Bloomberg. S&P 500; standard deviation of difference between Top 20% and Bottom 20% factor returns, market value weighted.

That being said, from the factor performance presented in Exhibit 7, a few key themes emerged:

Exhibit 7: Factor quintile spreads and relative ranking

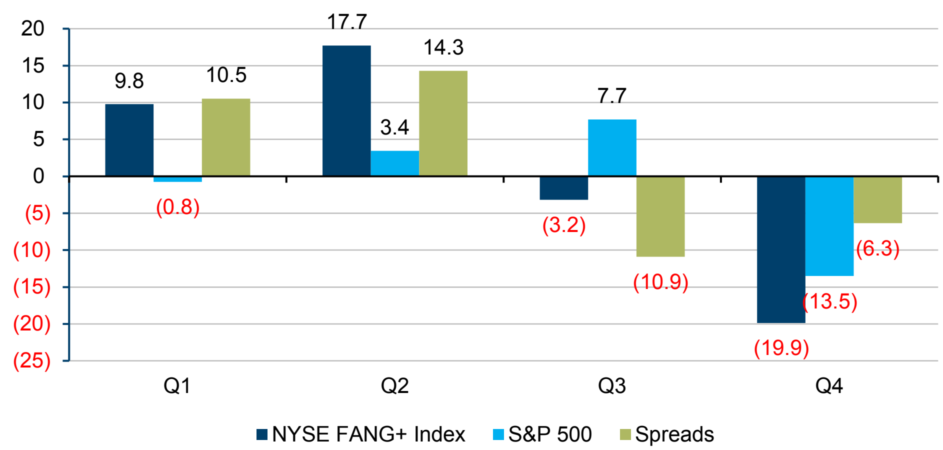
Categories	Factors	Q1	Q2	Q3	Q4	2018	Q1	Q2	Q3	Q4	2018
Capital Allocation	Capex -to- Depreciation *	(3.0)	0.6	0.0	(2.2)	(4.5)	18	5	11	17	14
	Share Buyback	1.4	(1.3)	2.9	1.5	4.5	7	14	4	10	7
Catalyst	12-month Price Momentum	4.2	1.1	2.1	1.6	9.0	3	4	6	9	1
	Earnings Revision	5.5	0.1	2.9	(0.9)	7.7	1	8	5	14	3
	Relative Strength	5.5	(0.1)	3.8	(0.2)	8.9	2	10	1	13	2
Growth	Predicted LT EPS Growth	3.5	1.8	(2.5)	(3.0)	(0.2)	5	1	19	19	10
	Sales Growth	3.7	0.2	(1.0)	(3.8)	(0.9)	4	6	14	21	11
Quality	Cash Flow Return on Assets *	2.2	0.2	0.1	2.1	4.6	6	7	10	8	6
	Change in Free Cash Flow Margin *	0.9	(2.0)	(0.4)	3.0	1.5	9	15	12	4	8
	Return on Equity	0.6	1.4	3.7	0.6	6.2	12	2	2	11	4
	Earnings Quality *	(2.1)	(4.0)	(1.3)	6.0	(1.4)	16	19	15	1	12
Risk	Earnings Variation	0.1	(1.0)	(5.4)	(8.3)	(14.6)	13	12	24	23	23
	Financial Leverage *	(1.6)	(4.2)	(3.9)	(1.7)	(11.5)	14	20	21	16	20
	Volatility	1.3	0.1	(4.2)	(7.6)	(10.5)	8	9	22	22	18
	Size	0.8	(0.9)	3.4	2.7	5.9	11	11	3	5	5
	Beta	0.8	1.3	(3.7)	(11.8)	(13.4)	10	3	20	24	22
Value	Book/Price	(5.0)	(1.1)	(4.3)	(1.7)	(12.2)	22	13	23	15	21
	Sales/Price	(4.3)	(2.1)	1.0	(2.4)	(7.8)	20	16	9	18	16
	Forward Earnings/Price	(7.9)	(4.5)	(2.5)	(3.5)	(18.5)	24	21	18	20	24
	Trailing Earnings/Price	(4.4)	(2.8)	1.6	2.5	(3.1)	21	17	7	7	13
	OCF/Price *	(2.2)	(5.5)	(0.7)	2.6	(5.8)	17	22	13	6	15
	EBITDA/EV *	(3.5)	(5.7)	(1.6)	(0.1)	(10.9)	19	24	16	12	19
	FCF/EV *	(1.7)	(3.9)	1.0	4.4	(0.1)	15	18	8	3	9
	Dividend Yield (High - Non Payers)	(6.6)	(5.5)	(1.9)	5.9	(8.1)	23	23	17	2	17

*Financials and real estate stocks were excluded in these factors’ performance calculation.

Source: Columbia Threadneedle Investments. S&P 500; Sector Neutral; difference between Top 20% and Bottom 20% factor returns; market cap weighted; cumulatively summed. Please see factor descriptions in endnotes.

- **Catalyst was crowned once again.** Price momentum and analyst sentiment factors were the top performers, posting solid gains for the second consecutive year. Specifically, they did very well in both Q1 and Q3, and they did not give back too much ground in the turbulent Q4. As momentum rebalanced," the strategy rotated from high growth names to low beta names over the course of the year.
- **Growth train slowed down**. In the first half of 2018, FAANG (Facebook, Apple, Amazon, Netflix, Google) names continued to lead the market, and growth factors outperformed. By contrast, the stock market de-FAANGed in the second half on concerns related to privacy, regulation, lofty valuation and growth prospects. During that time period, the NYSE FANG+ index underperformed the S&P 500 by 22.4% and ended the year basically flat (Exhibit 8).

Exhibit 8: 2018 Quarterly performance - NYSE FANG+ index vs. S&P 500



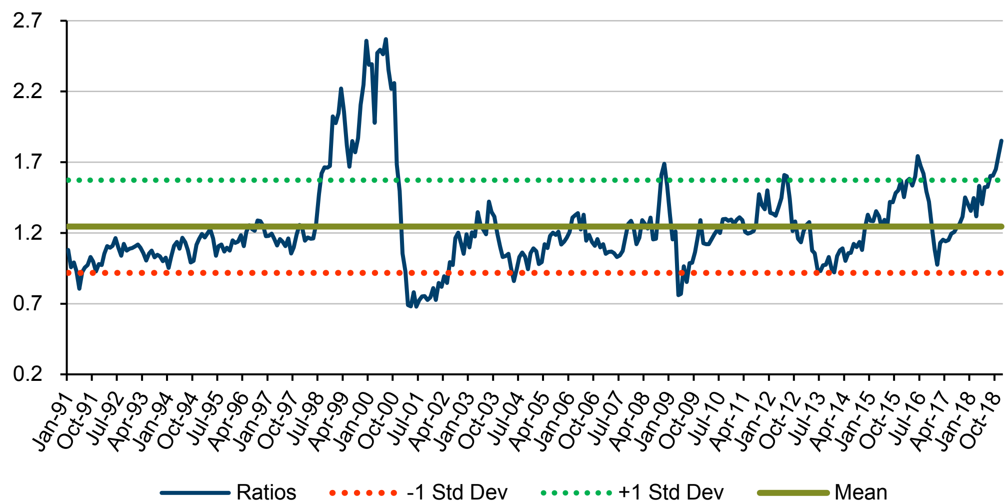
Source: Bloomberg

- **Value extended its stay in the dog house**. 2018 was another miserable year for value-style investing. All eight value factors listed in Exhibit 7 produced large negative spreads (the average return of the top quintile of stocks ranked by factor minus the lowest quintile) in the first two quarters. Metrics such as cash-flow yield and dividend yield recovered somewhat in the latter part of the year, but the others didn't. Value style has consistently underperformed in recent years, with Book/Price and Forward Earnings/Price currently experiencing one of their worst drawdowns on record. Among the root causes cited by some street experts are both a flattening yield curve and the shift to an asset-light economy.

- **Risky assets got dumped**. Stocks with less debt, stable business, strong profitability and other defensive characteristics outperformed their counterparts by a wide margin in 2018. Given the sharp sell-offs and heightened concerns, it shouldn't come as a surprise that investors were flocking to “safe” stocks. In addition, the preference for “quality” might also fit with a market sensing that the economic cycle is in its later phases. Can companies earn enough in a slowing economy to pay for the huge amount of debt accumulated over the past decade in a rising interest rate environment?

The growing bifurcation between the momentum trade and value trade is a point of concern. In recent months, momentum has become increasingly expensive (Exhibit 9). Some form of correction in major style factors’ returns might be just around the corner.

Exhibit 9: Relative forward P/E ratios between momentum factor top and bottom quintiles



Source: Columbia Threadneedle Investments.

Factor Descriptions

Name	Description
12-Month Price Momentum	Total returns in the past 12-month
Beta	A stock's sensitivity to market risks
Book to Price	Book Equity / Market Value
Capex to Sales	Capital Expenditure / Total Revenue
Cash Flow Margin Volatility	Standard deviation of cash flow margin in prior 4 years
Cash Flow Return on Assets	Trailing 1-year Free Cash Flow / Total Assets
CFO to Price	Trailing 1-year Operating Cash Flow / Market Value
Divd Yield (High - Non Payers)	Dividend per Share / Price
Earnings Quality	Cash flow conversion of corporate earnings
Earnings to Price	Trailing 1-year Earnings / Price
EBITDA to EV	Trailing 1-year Operating Income / Enterprise Value
FCF to EV	Trailing 1-year Free Cash Flow / Enterprise Value
Fwd Earnings to Price	Forward 12-month Estimated Earnings / Price
Gross Profit Margin	Gross Profit / Total Revenue
Growth	Prospects for earnings and revenue growth
Leverage	Debt level on balance sheet
Relative Strength	Consistency-adjusted stock price movement in prior 12-month
Residual Volatility	Idiosyncratic risk of stock returns
Revisions	Analyst earning estimate revisions
ROE	Trailing 1-year Net Income / Book Equity
ROIC	Trailing 1-year Operating Income / Invested Capital
Sales to Price	Trailing 1-year Revenue / Market Value
Size	Market Value

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