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QM Equity Quarterly Newsletter

Q2 2022

T. Rowe Price Quantitative Equity Team

Quarterly Factor Returns

(Fig. 1) April 1, 2022–June 30, 2022

Universe	Total Return	Valuation	Growth	Momentum	Quality	Profitability	Risk	Size
MSCI Japan	-4.41%	6.71%	-12.08%	2.98%	-1.46%	-10.88%	-11.02%	-2.93%
MSCI Emerging Markets	-7.95%	-3.80%	2.29%	-12.89%	-4.27%	-5.25%	6.24%	-1.15%
MSCI Europe	-8.34%	5.72%	-10.83%	6.77%	3.57%	-3.24%	-10.50%	1.28%
MSCI Pacific ex-Japan	-8.65%	4.86%	-13.04%	1.15%	3.04%	-3.43%	-10.34%	-3.01%
Russell 1000 Value	-12.21%	7.78%	-3.82%	6.48%	9.94%	6.63%	-16.15%	5.23%
Russell 1000	-16.67%	12.58%	-11.48%	10.62%	12.30%	10.83%	-18.52%	3.47%
Russell 2500	-16.98%	15.04%	-5.16%	9.60%	16.18%	14.56%	-17.66%	5.00%
Russell 1000 Growth	-20.92%	14.21%	-15.68%	11.75%	18.90%	19.14%	-21.41%	4.42%

Past performance is not a reliable indicator of future performance.

Sources: Refinitiv/IDC data, Compustat, Worldscope, Russell, MSCI. Analysis by T. Rowe Price. See Additional Disclosures.

Factor returns are calculated as equal weighted quintile spreads. Please see Appendix for more details on the factors.

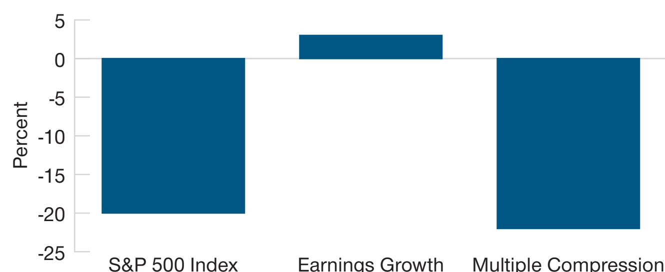
The second quarter of 2022 saw a steep sell-off in global equities, most notably in large-cap growth stocks, while the energy and defensive sectors (utilities, consumer staples, health care) were relative outperformers. This unsupportive backdrop reflected concerns over rising inflation, rising interest rates, and a potential recession. High growth stocks' valuations proved dependent on the low rate environment, while investors favored shorter-duration, high-dividend stocks.

1. **The sell-off was across markets, sectors, and asset classes—there was nowhere to hide.** Global stock markets faced headwinds from the combination of rising inflation, tightening from many central banks, the continued impact of the Russia-Ukraine war, and the latest round of COVID-19 lockdowns in China. Across asset classes there were few diversification benefits as fixed income also lagged significantly.

2. **There was a continued rotation from growth to value and from risk to quality.** With risk aversion returning to markets, trends from the last few years continued to reverse in the second quarter. Long duration expensive growth stocks underperformed significantly, whereas the decline of value stocks was more muted (Figure 1). Higher-risk stocks

S&P 500 Returns Broken Into Earnings Growth and Multiple Compression

(Fig. 2) January 1, 2022–June 30, 2022



Past performance is not a reliable indicator of future performance.

Source: S&P Global Market Intelligence; S&P Capital IQ Estimates.

faced consistent selling pressure, whereas quality stocks had more limited downside. Dividend-paying stocks, as represented by the S&P 500 High Dividend Index, outperformed the S&P 500 Index by over 17%. This rotation continues a theme discussed in our previous newsletters.

3. **The market decline thus far has been driven by multiple contraction—will earnings follow?** As shown in Figure 2, the market correction so far this year has been driven by multiple contraction, with the S&P 500 forward 12-month price/earnings multiple declining from 21.3 at the start of the year to 16.5 as of June 30. However, earnings estimates have held up surprisingly well, with the S&P 500's 12-month forward consensus earnings rising by 3% over that same period. As indicated earlier, inflation was a key driver this quarter and had two consequences. The first—accelerating the Federal Reserve's tightening response—is clearly shown in declining multiples. The second—anticipated slowing of the economy—has not yet been reflected in earnings estimates. In our view, earnings downgrades are likely, and, while we see limited additional downside to equity multiples, we believe there is continued risk of an earnings decline.

MARKET INSIGHT—WHAT WE'RE MONITORING

We believe one of the key themes in the coming months will be the impact of stock-based compensation (SBC), particularly among growth stocks. Over the past few years, there has been a significant increase in SBC as a percentage of sales, particularly in industries such as pharmaceuticals, biotechnology, software, and health care technology (Figure 3).

While stock prices were rising, this was a tailwind for companies, as they used SBC as a cheap source of employee compensation. Now that stock prices are declining, high use of SBC introduces a variety of potential challenges:

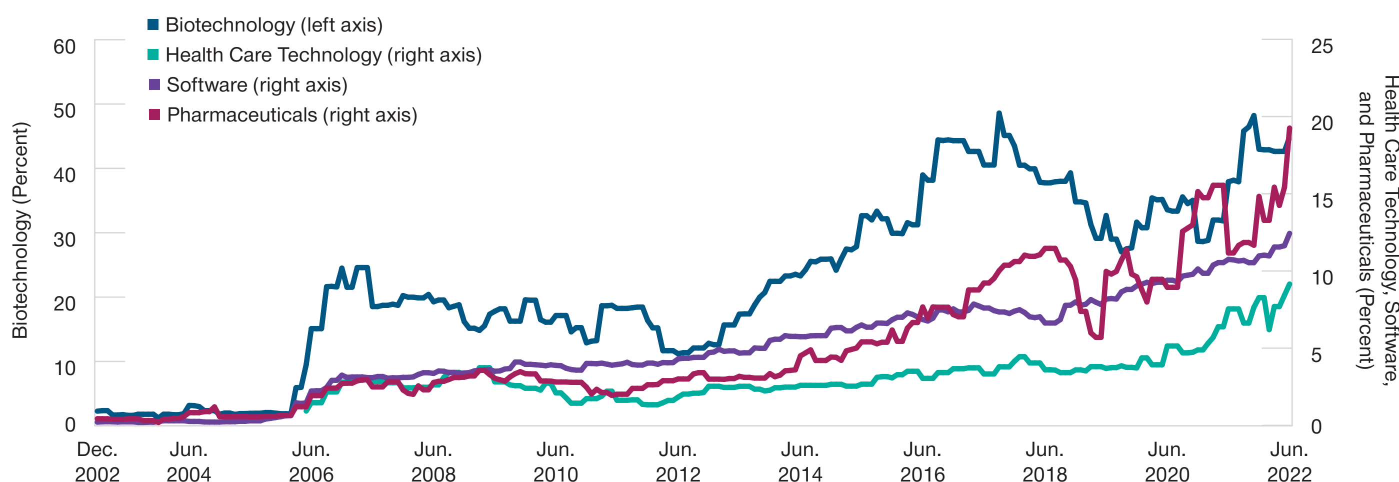
- **Lower GAAP[1] cash flow**, as employers may need or choose to vary the share of compensation from SBC to cash, which is expensed rather than capitalized
- **Higher taxes for profitable firms**, as lower payouts of deferred stock will lower realized employee expense and raise taxable income.
- **Higher compensation expense**, as employers potentially increase future compensation to offset declines in SBC values
- **Higher dilution**, as employers potentially make increased SBC grants at lower stock prices
- **Higher employee turnover**, as declining equity values reduce the retention benefits

To better assess the risks of SBC, we analyzed which U.S. stocks would be most at risk. Our simplified framework identifies stocks that rate poorly on three key criteria:

- High SBC as a percentage of sales
- High dilution if current SBC practices were continued at today's stock prices
- High cash flow risk if SBC were treated as a tax-adjusted expense

Stock-Based Compensation as a Percentage of Sales Has Been Growing

(Fig. 3) December 31, 2002–June 30, 2022



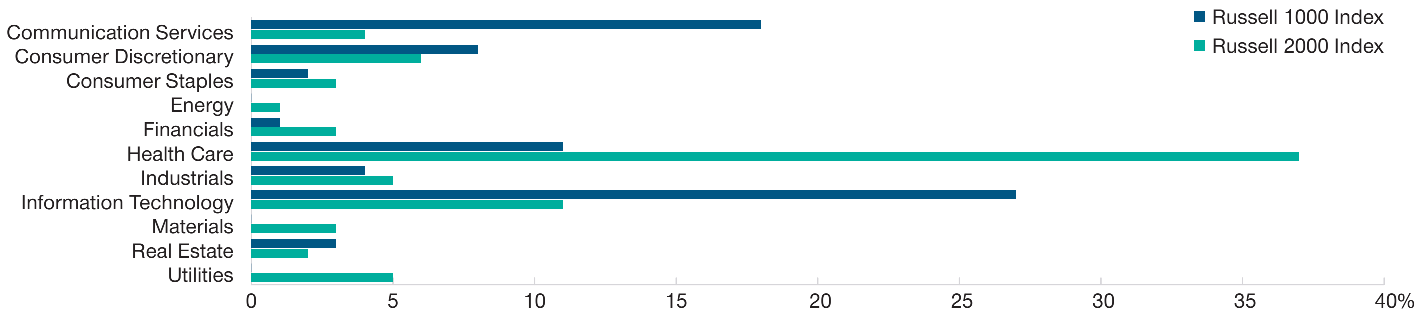
Past performance is not a reliable indicator of future performance.

Sources: Refinitiv/IDC data, Compustat, Russell, MSCI, T. Rowe Price analysis. See Additional Disclosures. The universe is the Russell 3000 Index. The start date for Health Care Technology data is 5/31/2006.

[1] Generally accepted accounting principles.

Stocks With High SBC Risk and Recent Stock Underperformance

(Fig. 4) Snapshot as of June 30, 2022



Past performance is not a reliable indicator of future performance.

Sources: Refinitiv/IDC data, Compustat, Russell, MSCI, T. Rowe Price analysis. See Additional Disclosures.

High SBC risk is defined as the bottom 15% of our multifactor score. Stock underperformance is defined as performance versus the Russell 1000 or Russell 2000 Index, year-to-date. The X-axis values represent the percentage of stocks that meet the criteria discussed in the first paragraph below the chart. The chart groups stocks by index and sector.

We then cross-referenced this list with stocks that have underperformed their benchmark this year to identify the intersection of SBC risk and stock underperformance. This analysis intuitively suggests that the biggest SBC risks are concentrated in a few growth sectors, with the Russell 1000 Index showing the most risk in information technology and communication services, while the Russell 2000 Index risks are overwhelmingly in health care and, secondarily, information technology (Figure 4).

Furthermore, we highlight the impact on cash flows: Roughly 6% of the Russell 1000 constituents and 11% of the Russell 2000 constituents would have their cash flows turn from positive to negative if after-tax SBC was considered a cash expense (Figure 5).

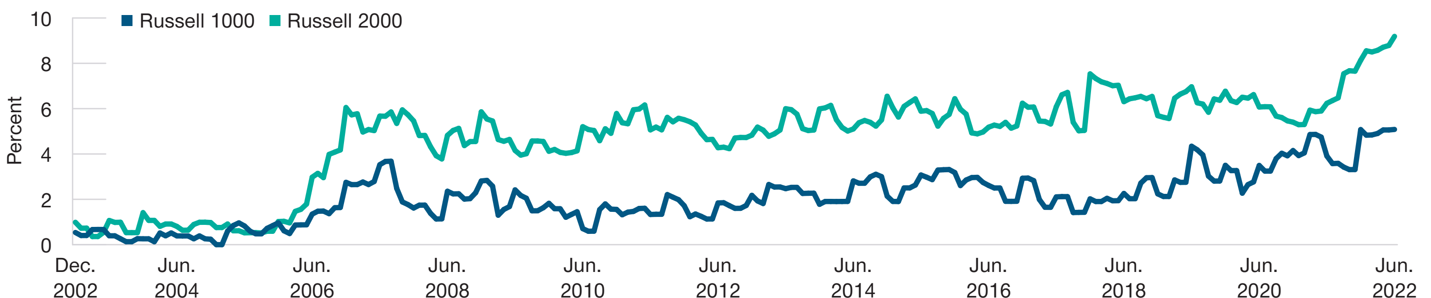
Many of the stocks with high SBC exposure have already corrected significantly, as many of them tend to be high-growth stocks with negative earnings. We have written about the valuation risks to these stocks in previous newsletters, and many have sold off significantly this year.

That said, we believe high SBC presents a continued risk for many of these companies. Some companies have strong cash flows and balance sheets and are easily able to absorb a shift from SBC to cash. Some companies also have share buyback programs in place to offset the dilution effect of SBC. In our view, the at-risk stocks tend to be earlier-stage, higher-growth, less profitable companies that depend on SBC as a source of cheap financing and could enter a “death spiral,” as stock price declines trigger employee turnover, dilution, and cash burn—all of which in turn tend to accelerate the falling stock price.

In summary, we are paying close attention to SBC practices, and our analysis suggests that underweighting stocks whose prices have declined and whose balance sheets and cash flows may be insufficient to endure the embedded risks continues to be a wise strategy.

Percentage of Stocks With Cash Flows Turning Negative Due to SBC*

(Fig. 5) December 31, 2002–June 30, 2022



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Sources: Refinitiv/IDC data, Compustat, Russell, T. Rowe Price analysis. See Additional Disclosures.

*Assumes that after-tax SBC was a cash expense.

APPENDIX

Factors are our internally constructed metrics defined as follows:

Valuation: Proprietary composite of valuation metrics based on earnings, sales, book value, and dividends. Factor selection and weighting vary by region and industry.

Growth: Proprietary composite of growth metrics based on historical and forward-looking earnings and sales growth. Factor selection and weighting vary by region and industry.

Momentum: Proprietary measure of medium-term price momentum.

Quality: Proprietary measure of quality based on fundamental and stock price stability, balance sheet strength, various measures of profitability, capital usage, and earnings quality.

Profitability: Return on equity.

Risk: Proprietary composite capturing stock return stability over multiple time horizons (positive return means risky stocks outperform stable stocks).

Size: Market capitalization (positive return means larger stocks outperform smaller stocks).

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