



# The Market Has a Math Problem

## Or Does It? It All Depends on Where Rates Go

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### Key takeaways

- With earnings growth decelerating—and at risk of getting downgraded in 2020—the stock market can rally strongly from here only if valuations expand.
- But with the global economy slowing and trade tensions mounting, I find that scenario unlikely for now, leaving the market stuck in its 20-month trading range.
- Relative to bonds, though, stocks appear cheap to me.
- Should bond yields continue to fall, I think a case can be made that the stock market could extend its rally on relative valuation alone.

Beyond the nuances of what makes the stock market tick, it ultimately comes down to a simple equation: The total return for an equity index equals the sum of its dividend yield and earnings growth plus any change in its price-to-earnings (P/E) ratio, or valuation. In respective mathematical terms, let's define it as:

$$D + \Delta E + \Delta V = \text{Total Return}^1$$

Now mind you, I said "simple" and not "easy," because other than the dividend part, correctly projecting the stock market's total return is a nearly impossible-to-solve three-dimensional puzzle. First we need to have a sense of where earnings, or free cash flow (FCF), is going. Then we need to guess at the upside/downside potential for the stock market's valuation, which itself is based on earnings growth, interest rates, and the equity risk premium (the additional return above a "risk-free" rate investors expect for putting their money into a riskier asset class). This is no small feat.

Changes in valuation are driven by the sustained growth rate of cash flows and by the cost of capital. The latter is moreover affected by changes in the risk-free rate (10-year Treasury yield) and in the equity risk premium.

I point this out because, on its surface, I have difficulty envisioning a scenario in which, anytime soon, the S&P 500® index stages an upside breakout from its now 20-month-old trading range. The index's earnings growth has steadily slowed from 2018's torrid and tax-cut infused 22% pace to what is I think is likely to amount to a mere 2% growth rate for 2019.

Market expectations are for a recovery to 10% earnings growth in 2020 as well as 2021, but as we close in on

year-end, we enter the time frame where investment analysts historically have started scrutinizing their 2020 assumptions more closely. In turn, that likely will kick off the downward earnings-revision drift we usually see over the course of a year (and which I've charted in previous commentaries). So even in a status quo type of environment, experience tells me those 10% estimates are likely to start sliding.

But we are not in a status quo environment: We are in a global slowdown compounded by a serious trade war. Based on the latest sub-50 ISM report,<sup>2</sup> including its weak new-orders component, I expect earnings estimates to be revised lower in the months ahead, even beyond the typical seasonal drift that can develop around now.

**EXHIBIT 1: The P/E ratio is not exactly bumping up against historical extremes**

S&P 500 Historical Earnings and Valuation (1967–2019 YTD)



Gray shaded bars indicate U.S. recessions. Source: Robert Shiller, Haver Analytics; monthly data through 8/31/19.

Based on the simple equation I outlined at the start, if dividend yield ( $D$ ) = 2% and earnings growth ( $\Delta E$ ) is slowing to 2% in 2019—and unlikely to enjoy a 2020 bounce to the degree the market has been pricing in lately—then by my math that means the only way for the market to gain more than 4% over the next year is for valuations to move up from here ( $\Delta V$ ).

That's possible, I think, but not without some catalyst. That catalyst could have been the Federal Reserve's deciding to "shock and awe" us with a 50-basis-point rate cut at its September meeting—coupled with a promise to do more. But instead the Fed stuck with its mid-cycle correction theme, cutting its benchmark rate by just a quarter point and suggesting no further rate cuts for 2019 and 2020

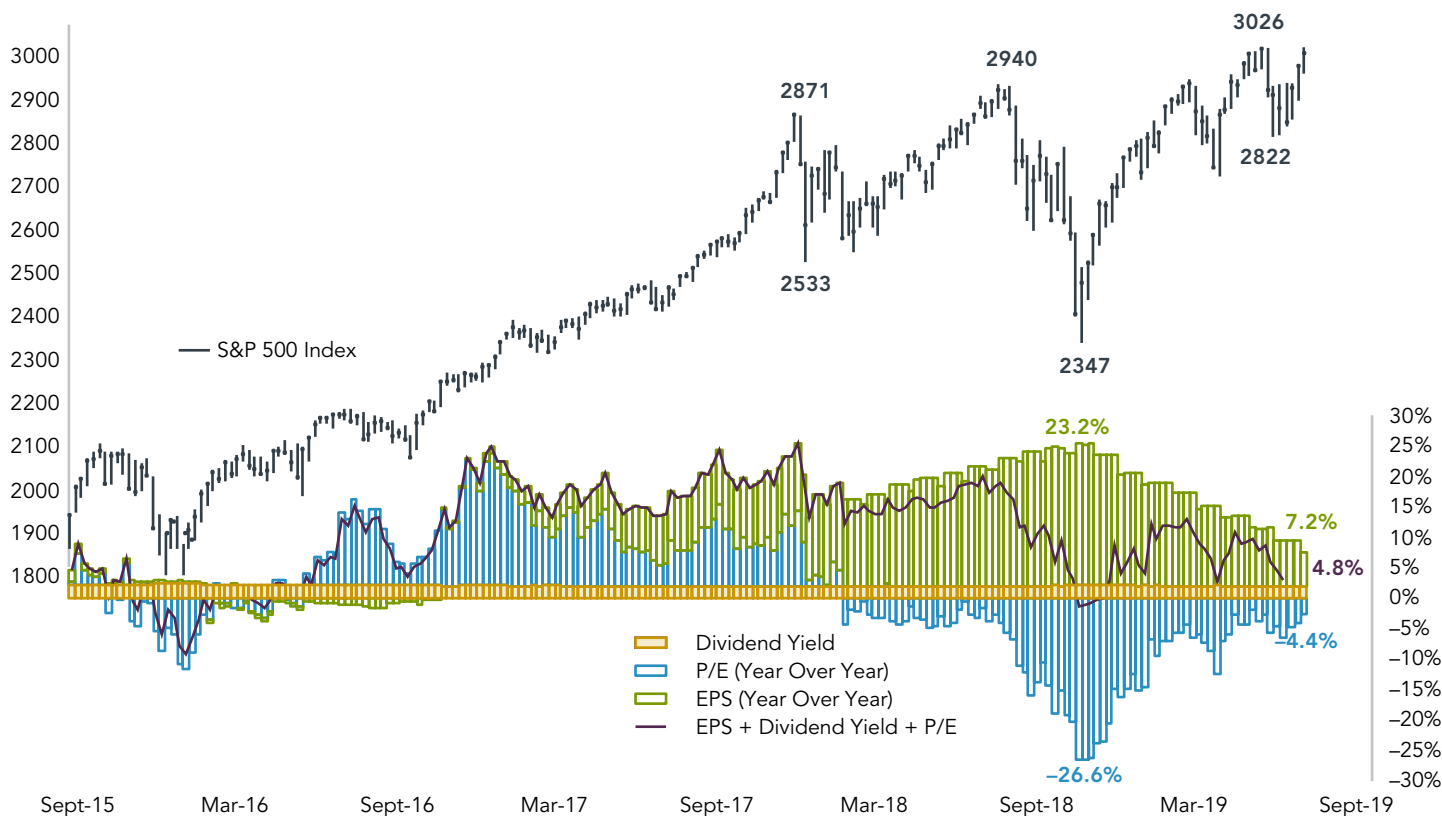
(versus what had been bond market expectations of four more cuts). So, as I see it, the impetus isn't likely to come from the Fed, despite even its subsequent injection of nearly \$300 billion (so far) of liquidity into the system.

What else? The U.S. and China could reach a trade deal. But my sense is that even were a deal to materialize, it likely would be limited, not enough to put an end to current international trade disputes.

Of course, we could simply enjoy a general improvement in economic prospects, enough to lift earnings growth back toward trend. But based on the most recent data, I see plenty of downside momentum and few signs of a bottom, so I am not holding my breath on this one either.

## EXHIBIT 2: Stocks have been stuck in a trading range, but what else is there?

S&P 500 Earnings, Dividends, and Valuation (2015–2019 YTD)



EPS: Earnings per share. Source: Fidelity Investments, Bloomberg Finance L.P.; weekly data through 8/31/19.

On the front line of the economic slowdown and the trade war are profit margins, and those continue to erode for companies in the large-cap S&P 500® equity index (Exhibit 1). Using a slightly different (maybe “cleaner”) data lens, the net margin on the MSCI USA Index has declined from its peak of 12.1% in 2018 to 11.7% more recently. That’s not the end of the world by any means, but if profit margins don’t hold up then it becomes harder and harder to reconcile the divergence between the stock market’s P/E ratio and its price-to-sales ratio.

The S&P 500’s P/E ratio is somewhere above normal, but not near historical extremes (unless viewed through the

lens of the 10-year CAPE<sup>3</sup>); however, at 2.2x, the index’s price-to-sales ratio is very close to its all-time high set at the peak of the dot-com bubble in the year 2000.

The difference between these two ratios? Profit margins. Rising margins have been a key driver for this now 10-year-old bull market. If that trend goes into reverse because of a trade war—not to mention the stagflation that such a war might produce—then the whole secular bull market thesis could be called into question.

Or would it? The silver lining of the recent plunge in interest rates—with the 10-year Treasury yield, adjusted

### EXHIBIT 3: A decline in the implied cost of capital can have an outsized effect on growth in free cash flow

The Discounted Cash Flow Model: Various Inputs and Outcomes

		Free Cash Flow Growth																				
		–5%	–4%	–3%	–2%	–1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
Implied Cost of Capital, or Total Cash Yield (Dividends + Buybacks)	6.0%	–5%	–4%	–4%	–3%	–2%	–1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%
	5.8%	–5%	–4%	–3%	–2%	–1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	10%	11%	12%	13%	14%
	5.6%	–4%	–3%	–2%	–1%	0%	1%	2%	3%	4%	5%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
	5.4%	–3%	–3%	–2%	–1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%
	5.2%	–3%	–2%	–1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%
	5.0%	–2%	–1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%
	4.8%	–1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	17%	16%	18%	19%
	4.6%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
	4.4%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%
	4.2%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%
	4.0%	2%	3%	4%	5%	6%	7%	8%	9%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%
	3.8%	3%	4%	5%	6%	7%	8%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%
	3.6%	4%	5%	6%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%
	3.4%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	18%	19%	20%	21%	22%	23%	24%	25%	26%	27%
	3.2%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	18%	19%	20%	21%	22%	23%	24%	25%	26%	27%	28%
	3.0%	8%	9%	10%	11%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	26%	27%	28%	29%	30%
	2.8%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	26%	27%	28%	30%	31%	32%
2.6%	11%	12%	13%	15%	16%	17%	18%	19%	20%	21%	22%	24%	25%	26%	27%	28%	29%	30%	31%	33%	34%	
2.4%	13%	14%	15%	16%	18%	19%	20%	21%	22%	23%	24%	26%	27%	28%	29%	30%	31%	32%	33%	35%	36%	
2.2%	15%	16%	17%	18%	20%	21%	22%	23%	24%	26%	27%	28%	29%	30%	31%	32%	33%	35%	36%	37%	38%	
2.0%	17%	18%	19%	21%	22%	23%	24%	25%	27%	28%	29%	30%	31%	32%	33%	35%	36%	37%	38%	40%	41%	
1.8%	20%	21%	22%	23%	24%	26%	27%	28%	29%	30%	32%	33%	34%	35%	36%	38%	39%	40%	41%	43%	44%	
1.6%	22%	24%	25%	26%	27%	29%	30%	31%	32%	33%	35%	36%	37%	38%	40%	41%	42%	43%	45%	46%	47%	

Source: Fidelity Investments, Bloomberg Finance L.P., Haver Analytics, FactSet. Data as of 8/31/19.

for inflation, declining from 1.15% at its 2018 high in November to a low of -0.09% this past August—is that it has elevated the earnings-based equity risk premium (in this case, the difference between the S&P 500's earnings yield and the risk-free rate) to 4.5%. That figure is well above the 2% risk premium we have seen in recent years and as high as it was this past December when the S&P 500 was off around 20% from its 2018 high.

So, if the equity risk premium were to revert towards 2% or even 3%, that would suggest to me the cost of capital, which helps determine the market's fair value, could come down by 100 to 200 basis points. To see this, we can look to the discounted cash-flow (DCF) model, where the numerator (expected earnings growth) divided by the denominator (the cost of capital) attempts to estimate the value of future earnings in today's dollars.

It's interesting that the implied cost of capital (which accounts for dividends and buybacks) has barely budged in recent months, despite a plunging risk-free rate. The DCF's denominator has been stuck at around 4.5% to 5% for years now. So if the overall cost of capital declines as an expression of the TINA theme—"There Is No Alternative" (to stocks)—we could very well see some upside fireworks. And that could be what breaks the market out of its long-standing trading range (Exhibit 2).

This is where market math comes in again. At low- to mid-single-digit earnings (FCF) growth, a 100–200 basis point drop in the cost of capital would have a substantial impact on valuations (think of it as convexity for stocks). All else equal, a downward shift in the cost of capital from 4.6% to 3.6% would more than double the FCF gain from 5% to 10%, as shown in my DCF model's output grid (Exhibit 3).

In conclusion, from where I am sitting—and barring a surprise from the Fed or an economic rebound—I think the only way the market will be able to move up from current levels in a sustained way is for the equity risk premium to "catch up" to the bond market's term

premium, i.e., by falling sharply. (The term premium is the excess yield investors typically expect from holding a long-term bond versus a series of shorter-term bonds.) Based on my recent deep dives on yields, demographics, and secular bull market analogs, I don't consider such a nosedive very likely over the near term, but I also wouldn't bet against it over the long term.

### Author

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Jurrien Timmer is the director of Global Macro for the Global Asset Allocation Division of Fidelity Investments, specializing in global macro strategy and tactical asset allocation. He joined Fidelity in 1995 as a technical research analyst.



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#### **Endnotes**

<sup>1</sup> In general terms, an equity investment's total return can be calculated by adding three main components for a specified period: the investment's dividends (or dividend yield, its total annual dividends expressed as a percentage of its current share price), its earnings growth, and the change in its valuation multiple, most commonly its price-to-earnings (P/E) ratio. In mathematical terms, the investment's total return (TR) equals the sum of its dividend yield (D), growth in earnings ( $\Delta E$ , where " $\Delta$ ," or delta, means "the change in"), and change in valuation ( $\Delta V$ , or P/E expansion or contraction); that is,  $TR = D + \Delta E + \Delta V$ .

<sup>2</sup> The Institute for Supply Management® (ISM) reports the U.S. manufacturing purchasing managers' index (PMI®), a survey of purchasing managers in a certain economic sector. A PMI® above 50 represents expansion of the sector compared with the previous month, while a reading below 50 represents a contraction; a reading of 50 indicates no change. The ISM Manufacturing New Orders Index is one of the elements of the PMI. A recognized leading indicator of the U.S. economy, the New Orders Index reflects a change in new orders of industrial companies.

<sup>3</sup> The cyclically adjusted P/E (CAPE) ratio, developed by Yale economist Robert Shiller, measures the price of the S&P 500 divided by the average of its past 10 years of earnings, adjusted for inflation. The most recent CAPE was calculated as 29.0x. Data sets can be found at <http://www.econ.yale.edu/~shiller/data.htm>.

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