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Valuations, Rates, Risk and History

We focus most of our time on four things: finding good long-term investment opportunities, the economic environment, risk management and valuations – the subject of today's letter. Specifically, we try to assess "fair" valuations – what companies should be worth (within a reasonable range) based on their operational history and outlooks, and how those values compare to current market prices. There are many ways to assess value and even more components that should be part of a good assessment. Rather than get into those details, we're going to keep the focus more high-level. We deliberate over valuations because the price you pay for an investment impacts your embedded portfolio risks and future returns. Buying a stock on the cheap lowers the bar for a business to exceed expectations and gives you a better chance of reaping future gains. Paying too much for an investment increases the chance of a disappointing outcome relative to expectations and subpar returns.

But what is expensive and what is cheap? At a fundamental level, the value of an asset is the sum of all future cash flows it produces discounted back to the present at a rate that accounts for prevailing interest rates and the operational risk associated with generating those future cash flows. Unsurprisingly, a company with a highly predictable business model and growing cash flows, like Microsoft, is going to command a higher valuation (as measured by a multiple of its earnings, cash flows or sales) than a chemicals firm whose financial results are dependent on volatile commodity cost inputs and the future price and demand for its end-products. We could get into a long discussion on valuation theory, but we think a simpler approach will suffice. At the risk of oversimplifying, determining "fair" value for stocks requires two things: (1) taking into context broader macro-economic conditions (with an emphasis on interest rates) and (2) an assessment of a company's future operational risk.

As to the first category: we are living in a world where nominal interest rates are approaching 0% or lower for developed market government bonds – considered to be "risk free" assets, since there is a very low probability of let's say the U.S. defaulting on its debt obligations. When you take inflation into account, the "real yield" one gets on these instruments (the nominal yield minus inflation) is substantially negative (see the below chart).[1] This has two effects on valuation: (1) it significantly increases the present value of future cash flows relative to prior periods when rates were higher ($100 in hand 10 years from now discounted back at 0% is worth $100 today vs. $75 in what seems like a different universe where rates were 3%); and (2) more practically, it has a major psychological effect on what investors are willing to pay for assets that actually have earnings, cash flows and growth potential (like stocks). If investors best alternative to owning stocks are bonds with a negative after-inflation yield, then it's no surprise that the average price to earnings ratio for stocks has gradually risen as rates have declined.

Real Interest Rates in the Developed World (Nominal Minus CPI)

As of 7/14/2021

Country	Inflation Rate	Policy Rate	6-Month	1-Year	2-Year	3-Year	4-Year	5-Year	6-Year	7-Year	8-Year	9-Year	10-Year	15-Year	30-Year
Switzerland	0.60	-1.35	-1.42	-1.41	-1.39	-1.38	-1.32	-1.24	-1.16	-1.11	-1.03	-0.97	**-0.91**	-0.73	-0.64
Germany	2.30	-2.80	-2.96	-2.97	-2.98	-3.01	-2.99	-2.92	-2.87	-2.80	-2.77	-2.71	**-2.62**	-2.36	-2.13
Netherlands	2.00	-2.50	-2.66		-2.72	-2.70	-2.65	-2.60	-2.54	-2.53	-2.46	-2.29	-2.21	-1.92	-1.75
Denmark	1.70	-2.20	-2.24		-2.28			-2.20			-1.70		-1.74		-1.70
Finland	2.00	-2.50		-2.64	-2.69	-2.70	-2.60	-2.58	-2.47	-2.38	-2.29	-2.18	**-2.09**	-1.84	-1.55
Austria	2.70	-3.20		-3.40	-3.38	-3.35	-3.31	-3.22	-3.19	-3.10	-2.99	-2.91	**-2.82**	-2.55	-2.18
Japan	-0.10	0.00	-0.03	-0.03	-0.03	-0.05	-0.05	-0.03	-0.03	-0.02	0.01	0.06	**0.11**	0.31	0.76
France	1.50	-2.00	-2.14	-2.14	-2.15	-2.12	-2.14	-2.07	-1.90	-1.78	-1.67	-1.58	**-1.49**	-1.21	-0.70
Belgium	1.63	-2.13	-2.28	-2.26	-2.32	-2.30	-2.24	-2.16	-2.05	-1.99	-1.89	-1.79	**-1.65**	-1.50	-0.87
Ireland	1.60	-2.10		-2.24		-2.18	-2.14	-2.07	-1.98	-1.89		-1.60	**-1.55**	-1.33	-0.85
Spain	2.70	-3.20	-3.26	-3.23	-3.23	-3.14	-3.13	-3.01	-2.85	-2.76	-2.64	-2.52	**-2.39**	-1.86	-1.42
Portugal	0.51	-1.01	-1.10	-1.12	-1.13	-1.12	-1.01	-0.93	-0.76	-0.66	-0.56	-0.37	**-0.23**	0.07	0.72
Italy	1.30	-1.80	-1.82	-1.77	-1.71	-1.55	-1.42	-1.27	-1.07	-0.99	-0.84	-0.71	**-0.59**	-0.12	0.41
United Kingdom	2.50	-2.40	-2.50	-2.45	-2.42	-2.33	-2.29	-2.20	-2.11	-2.04	-1.93	-1.85	**-1.87**	-1.56	-1.40
Australia	1.10	-1.00	-1.09	-1.08	-1.04	-0.79	-0.56	-0.39	-0.22	-0.08	0.04	0.17	**0.24**	0.61	1.03
New Zealand	1.50			-1.50	-0.62			-0.33		-0.03			**0.25**	0.62	
Canada	3.60	-3.35	-3.41	-3.35	-3.15	-2.96	-2.76	-2.69		-2.51			**-2.31**		-1.79
United States	5.40	-5.28	-5.35	-5.33	-5.18	-4.97		-4.61		-4.30			**-4.05**		-3.43

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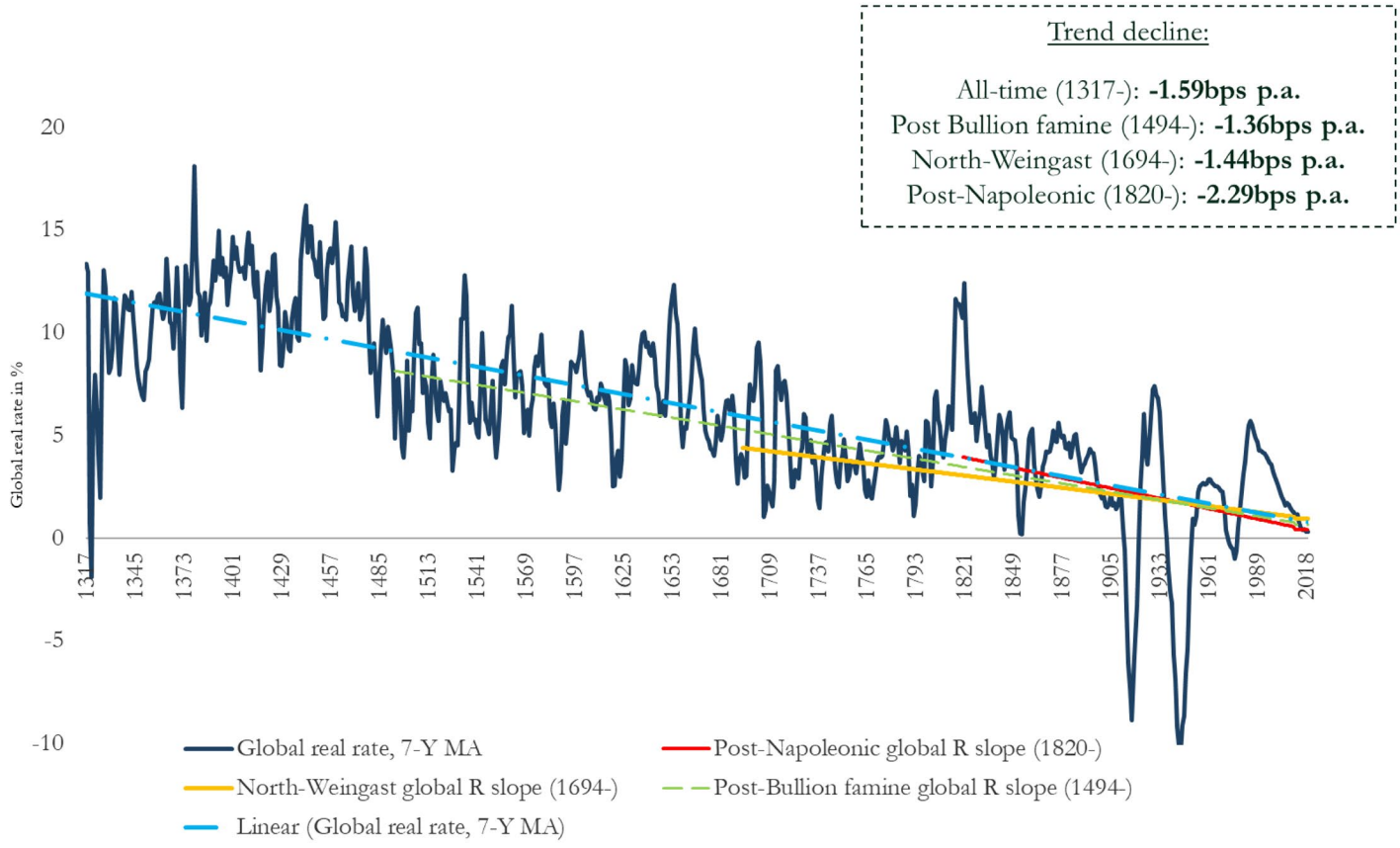
This begs the question whether nominal rates approaching 0% and negative real rates are sustainable. If not and rates meaningfully increase – which many expect given today's strong economic growth and rising inflation – it will have a downward impact on asset valuations. If history is any guide, however, deeper structural forces might be at play with respect to interest rates, which investors and economists need to acknowledge even if there isn't a perfect explanation for why.

Last year, the Bank of England published a detailed statistical analysis on the last eight centuries of global interest rates and their "suprasecular decline."[2] The main takeaway is that nominal and real interest rates, in particular, are structurally falling. While data over eight years might just be a temporary pattern or eight decades a multi-generational movement, it's harder to dismiss an eight century trend. For those interested in exploring the data, we have included an online citation to the paper in the endnotes, but the key message can be seen in the below graph. While there is variance around the trend lines, the long-term path for global rates is down.

Global Real Rate (GDP-Weighted) and Trend Declines, 1317-2018



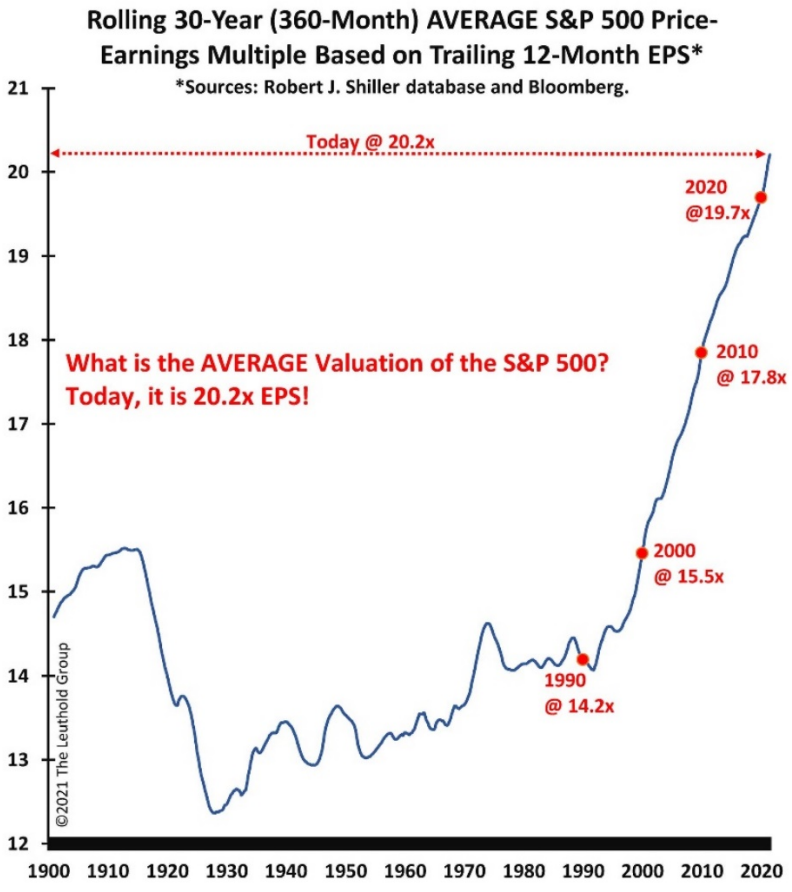
In a world where rates are declining and the real return on bonds after inflation is negative, it makes sense that stock valuations are rising. But rising equity values may not just be a story about falling rates. The S&P 500 currently trades at 27x its trailing composite earnings and 22x forward earnings estimates.[3] These are close to the highest levels since 1929.[4]

In fact, since 1929, the average trailing price to earnings ratio for the index has been 15.7 and the forward PE has averaged 15.2. [5] So should it give us pause that we are trading at levels well-above historic averages? Yes and no.

On the one hand, reversion to the mean is a powerful force and there is a crowded investor graveyard for those who have proclaimed "this time is different" and proven to be wrong. But as we have just discussed, interest rates are approaching historic lows in the U.S and globally. At 1.20%, the U.S. 10-year Treasury yield is well below its average of 4.87% since 1929.[6] Unless you think rates will meaningfully rise, today's current levels offer some support for higher-than-average stock valuations.

As mentioned above, the second component of determining fair value requires an assessment of a company's operational risk. We have previously written that we don't conceive of risk as volatility, though the two are certainly related. Instead, we think risk is better conceived as the potential for the future to turn out different than expected. Simply put, risk is the price of the unknown. But what if changes to the economy over the last century and the proliferation and accessibility of data make the unknown less of a mystery?

Relevant to this idea, we came across an interesting note in our research last week from strategist Jim Paulsen of The Leuthold Group.[7] Using stock market data going back to 1871, Paulsen calculated the rolling 30-year average price to earnings ratio for U.S. stocks based on their trailing 12-month earnings (using the S&P 500 and indices pre-dating its formation). Paulsen chose a 30-year rolling average reasoning that a generational timeframe is more meaningful to investors when considering valuation risk than a 150-year history. We think this is a justifiable and sensible approach.



What immediately jumps out in the adjacent chart is that since 1990 the U.S. stock market's 30-year average valuation has steadily risen and far surpassed average valuation levels during the preceding 120 years. Some of this could be interest rate related, as U.S. 10-year Treasury yields have consistently dropped since their nearly 16% peak in 1981. But it's notable that Treasury yields rarely exceeded 4% from 1880-1960; and between 1934-1955 – at the nadir of the historical valuation range – the 10-year Treasury yield averaged 2.49%.[8] Hardly an elevated level that might pressure valuations.

So, from a valuation perspective, what makes the last 30-year period for U.S. markets so different that the preceding 120 years? We think it ties back to operational risk. In short, perhaps operational risk has dropped – both for the average company and for the average investor's ability to assess it. From 1870-1990, the U.S. economy and public markets were dominated by capital and labor intensive firms. Railroads in the late 19th century, energy companies during various periods of the 20th century, banks in the early 20th century, and manufacturers of all sorts throughout much of the time-period. To

show just how much the times have changed, we compared the S&P 500's sector weightings today vs the U.S. market's composition in 1900 (see the below chart).[9] The ascendancy of technology, enabling less capital-intensive business models and better-informed corporate decision making has been a major development in modern history, but particularly over the last 30 years with the widespread adoption of the internet and growth of the software industry.

If the average company today is (1) less capital-intensive than in the past – meaning less dependent on fixed assets (i.e., property, plant and equipment) to drive sales – and (2) is using technology to make better strategic decisions (which has the effect of lowering costs and improving profit margins), then is it really a surprise that average valuations have increased? If technology has improved capital efficiency, de-risked business models and – perhaps most importantly for valuation purposes – provided investors with more accessible and accurate data, than the "unknown" future that investors need to discount when assessing fair valuations – whether by estimating future cash flows or just ascribing a multiple to earnings – is perhaps not quite as unknown as it may have been 30+ years ago. **The more accurately investors can predict an outcome, the less risk that outcome entails, and, in market terms, the more comfortable investors should be willing to wager on it happening.** In this light, it makes sense that valuations have risen alongside the proliferation of technology and data.

Stock Market Sector Breakdown
1900 vs 2021

S&P 500 Sector	2021 Weighting	1900 Weighting
Information Technology	27.90%	0.00%
Health Care	13.39%	0.00%
Consumer Discretionary	12.09%	4.00%
Communication Services	11.23%	5.00%
Financials	11.03%	20.00%
Industrials *(incl. Rails)*	8.34%	43.00%
Consumer Staples	5.78%	5.00%
Real Estate	2.63%	1.00%
Materials	2.56%	8.00%
Energy	2.54%	8.00%
Utilities	2.51%	6.00%
	100.00%	**100.00%**

As a brief aside since we just mentioned fixed assets above (property, plant and equipment in accounting parlance), we thought it made sense to briefly note that legacy accounting rules understate earnings – meaning that the "true" multiple on the S&P 500 is somewhat lower than its current level of 27x trailing composite earnings. We don't think it's that controversial to assert that in today's economy intellectual property is in many cases a more important asset for companies than physical property. Sure, there are exceptions like an energy company's reserve assets or a utility's grid network, but for today's most dominant firms their intangible assets, like IP and brand value, far exceed their tangible, or fixed asset values. Unfortunately, GAAP accounting hasn't evolved with the times.

If a railroad company purchases new freight cars that is recorded as a capital expenditure, which becomes a depreciable asset on its balance sheet. Importantly for valuation purposes, capital expenditures are considered after-earnings expenses under GAAP accounting – meaning that such costs don't count against a company's reported profits. On the other hand, if a technology company – let's say Alphabet (Google) – spends $29 billion on research and development costs (which it has in the last 12 months), then that expense *does* count against its earnings even though the cost has gone toward supporting the company's critical intellectual property. Google's IP is at the heart of its business and is certainly as valuable an asset (in fact, far more so) than the rail company's cars. But because of accounting rules, Google must take the $29 billion charge against its earnings rather than capitalize that asset on its balance sheet and depreciate it over time. While this has no impact on either company's cash flows in our example, it certainly has an impact on reported earnings per share.

As R&D spending has grown in dollar amounts and strategic importance, its unfavorable accounting treatment relative to traditional capital expenditures on tangible assets is getting harder to justify. In the chart below, we show the last 12 months of R&D spending by the ten largest companies in the S&P 500 (which together account for almost 28% of the total index). While not every company breaks out its R&D expenses, the reported number from these ten comes to just over

$161 billion during the last 12 months, which amounts to almost 9% of their combined sales. If all those expenses could be capitalized, the reported earnings from these firms would be higher and their price to earnings ratios lower.

Trailing 12-Month Research & Development Expenses
Reported by Ten Largest S&P 500 Firms

Company	Market Cap ($ in Billions)	T12M R&D Expense ($ in Billions)	T12M Sales ($ in Billions)	R&D to Sales
Apple Inc	2,429.11	21.12	347.16	6.08%
Microsoft Corp	2,153.09	20.72	168.09	12.32%
Alphabet Inc	1,808.10	29.04	220.27	13.18%
Amazon.com Inc	1,698.97	49.38	443.30	11.14%
Facebook Inc	1,011.96	21.26	104.79	20.29%
Tesla Inc	703.82	2.13	41.86	5.09%
Berkshire Hathaway Inc	637.75	0.00	365.57	0.00%
Visa Inc	520.07	0.00	22.65	0.00%
NVIDIA Corp	505.23	4.34	19.26	22.55%
Johnson & Johnson	456.37	13.44	89.19	15.07%

The purpose of this letter **is not** to tell you that markets are currently cheap (relative to history they are not!), but rather to provide a richer context to evaluate current valuation dynamics. As valuation sensitive investors – which we think all good investors must be – it's possible we need to get accustomed to an evolving valuation paradigm that has sustainably reset at a higher level than in the past. We just have 150 years of reliable stock market data to work with. In the larger scheme of human activity, it's a small sample size (especially compared to the 800 years of interest rate data we highlighted). Furthermore, during this time we have experienced accelerating technological advances. As a result, the economy has become less capital intensive, businesses are more efficiently managed, investors are better informed and consumers are better informed. In theory this should have a downward impact on both economic and market volatility, an upward impact on operational reliability and – when combined with the low interest rate environment – an upward impact on valuations.

History matters in guiding investment decisions, but so does humility. We don't have the hubris to say that this time indeed really is different, but we think investors need to keep an open mind about the structural effect of falling bond yields, improving technology and increased data accessibility on equity valuations.

If you would like to discuss anything in this letter, your portfolio or potential investment opportunities where the current market valuation leaves potential room for upside growth, please feel free to contact us. We hope you and your families are still enjoying the summer and staying safe.

Sincerely,

Peter Karmin
Managing Member

Stuart Loren
Director

Citations and Disclosures

[1] Bianco Research (July 14, 2021).
[2] Bank of England, *Eight centuries of global real interest rates, R-G, and the 'suprasecular' decline, 1311–2018*, Staff Working Paper No. 845 (Jan 3, 2020), available at: https://www.bankofengland.co.uk/working-paper/2020/eight-centuries-of-global-real-interest-rates-r-g-and-the-suprasecular-decline-1311-2018
[3] Bloomberg (as of Aug. 5, 2021). All market data cited herein is from Bloomberg unless otherwise noted.
[4] Bespoke Investment Group, *The Bespoke Valuation Report – 2021* (Dec. 2020).
[5] Bespoke Investment Group, *The Bespoke Valuation Report – 2021* (Dec. 2020).
[6] Bloomberg; Robert Shiller Online Database (as of July 2021), available at: http://www.econ.yale.edu/~shiller/data.htm.
[7] The Leuthold Group, *What Is The S&P 500's "NORMAL" P/E Multiple?* (Aug 1, 2021).
[8] Robert Shiller Online Database (as of July 2021), available at: http://www.econ.yale.edu/~shiller/data.htm.
[9] Bloomberg; Visual Capitalist, *Visualizing 200 Years of U.S. Stock Market Sectors* (Jan. 25, 2019), available at: https://www.visualcapitalist.com/200-years-u-s-stock-market-sectors/.

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