AJO

Pre-coronavirus edition, written March 4, 2020 when the S&P 500 was at 3130. A new edition, *Debunking 9-3/4 Myths*, is forthcoming.

DEBUNKING NINE *AND A HALF* MYTHS OF INVESTING

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A reader asked if I had updated my Debunking Nine Myths of Investing, which I wrote up in 2011 and 2016, for this strange new decade.[1] (It's a sobering thought that the long-awaited 21st century is one-fifth over.) I had not, so I'm doing so now, in the light of the profound changes that have taken place since 2016 when the last update was written: soaring then plunging markets, peculiar governments around the world, once obscure central bankers as masters of our universe, diseases of mysterious origin, and two middle-aged ladies upstaging the Super Bowl with their halftime show.

And, as the decades roll on, we're still wondering what kind of world we're going to leave for Keith Richards.

Despite recent extreme volatility, the U.S. public equity market continues to outperform everything else. Private equity, private debt, private infrastructure, private investment in public equity, and public investment in private equity were the flavors of the decade just ended; beware of their future performance. Hedge funds were the flavor of the previous decade, tech stocks the decade before, and leveraged buyouts the decade before that. What goes up does not always come down, but it's a thought worth considering. While stock market prices have risen, the number of stocks has *shrunk* so that the Wilshire 5000, intended to comprise the entire U.S. market, has 3473 constituents. I told you the decade was strange.

LOOKING BACK ON MY NINE MYTHS OF 2016 WITH A BYRON WIEN-TYPE SELF-CRITICISM SESSION

The score: five wins to three losses, with one "no decision." My 63% win rate sure beat active management, which at the last report scored 12% over the past ten years.[2]

Here were my nine myths of 2016 (and 2011, when I first started this series, on a trip to the delightful country of Brazil), along with my self-scoring — remember that these are *myths*, so the statement turning out to be wrong is a win for me:

1. "We will be in a low-return environment for the foreseeable future."

   - WIN: returns on investable assets have been excellent.

2. "The endowment model is broken."

   - PARTIAL WIN: while endowments and their exotic investments have underperformed conventional equity and bond investing, most endowments are doing fine.

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[1] 2011 article: http://allaboutalpha.com/blog/2010/05/02/ordem-e-progresso/. 2016 article: https://larrysiegel.org/debunking-nine-myths-of-investing/

[2] S&P Dow Jones Indexes. SPIVA ® U.S. Scorecard, Mid-Year 2019 Update.

3. "Diversification doesn't work anymore."

   - LOSS-to-draw: the S&P 500, with a total return of 13.4% per year over 2010-2019, has beaten every other asset class in the world. But the Original Alternative Asset, U.S. Treasury bonds, also had a great decade, up 4.2% per year. Diversification is still a good and necessary idea; ignore at your peril.

4. "Alternatives are where the return is, so these managers deserve their high fees."

   - WIN: alternatives were not where the return was, and many managers have stopped collecting those high fees. Yet, many still are: we can't tell if it's rent-seeking as investors pursue the unattainable high returns they crave, or if there truly is something special about "alts" managers as a class. We know a few are genuinely special (Jim Simons comes to mind); the idea that there are thousands of managers in that category is hard to swallow.

5. "You should try to minimize fees."

   - LOSS: near-zero-fee index funds were the star performers. I said that you should try to maximize return after fees, which allows for active management; I'd still say that. But minimizing fees was the way to go in the time period since the last "Myths" article.

6. "Active management only makes sense in markets that are inefficient."

   - WIN, active management didn't help in emerging or frontier markets any more than it did in U.S. large cap. In fact, most investors seem to have bought into the idea, now approaching its 70th birthday, that indexing is a good idea. (I credit Jack Bogle's 1951 senior thesis at Princeton, not the later work of the estimable Bill Sharpe, with the first thoughts on this topic. Sharpe is probably the greatest financial thinker of our time, but Bogle scooped him on this one.)

7. "It is a good thing to be an absolute return investor."

   - WIN, it's a good thing to participate in markets ("beta"). Other than the rare example of truly market-neutral long-short funds with a cash benchmark, there's no such thing as an absolute-return investor anyway.

8. "Liability-relative investing is good in theory, but interest rates are too low."

   - UNCLEAR, but interest rates have declined even further (reaching an all-time low of 0.91% on the 10-year Treasury bond on March 2, 2020), and defined benefit pension fund liabilities have consequently soared, so maybe the funds should have paid more attention to their liabilities when allocating assets. The same applies to defined contribution funds, endowments, savers, and other classes of investors, since all asset pools are gathered to pay some sort of liability or expense stream.

9. "All you need is alpha. Alpha makes the difference between a successful and a failed investment program."

    - WIN, reliable and consistent alpha seems to have gone the way of the dodo. Asset allocation is what has made the difference between a successful and a failed investment program, as Roger Ibbotson and many others told us 40 years ago.

How did I do? Not badly, but I didn't make any specific market forecasts, so I don't exactly deserve a medal for bravery. Byron does. He's quite good, and is the first to admit when he's made a mistake. Read his work, not mine, if you want to see the future. I just like being a mythbuster.

Nine and a half myths for 2020 and beyond

There are a few repeats, but mostly they're new.

Myth #1: There is so much indexing that the market must be getting more inefficient, because there is not enough money managed by people who analyze securities.

- Fat chance. About half the assets in the U.S. equity market are actively managed. That represents trillions of dollars overseen by analysts who diligently try to beat the market. While their success ratio is not great, they do engage in price discovery, enabling index funds to "free ride" on their efforts. And corporations can price their own securities, as Rex Sinquefield pointed out decades ago. They issue stock when they think the price is high and buy stock back when they think it's low. This activity is a major contributor to price discovery.

  At any rate, if the market were becoming "deliciously inefficient," in Jeremy Grantham's memorable phrase, we'd see it in the alphas. We don't.

Myth #2. There's no inflation, so the government can borrow all it wants.

- About a decade ago, Carmen Reinhart and Kenneth Rogoff came out with a masterly study showing that highly indebted nations get into trouble when their debt/GDP ratio exceeds 90%. They did not literally say that this was a tipping point beyond which recovery was impossible without an inflation that destroys the real value of the debt, but a reader could be forgiven for thinking that's what they meant.

  Later, a group of researchers found that Reinhart and Rogoff had made a data error. Some people ridiculed their work, and came to the astonishing conclusion that, because R&R had been a little careless, debt doesn't matter. Borrow away!

Debt does matter, because you have to pay it back. Or, if you're a government or a certain type of private borrower, you can just "roll over" the principal but you have to pay the "debt service" (interest and possibly a portion of the principal). We don't know where the tipping point is, and it may be different for each country and in each time period, but at some point you can't pay the interest, much less the principal.

But at some level of indebtedness we *will* have problems! More than two hundred years ago, David Ricardo noted that there are only three ways the government can raise revenue: (1) current taxation, (2) borrowing (which necessitates future taxation), and (3) inflating away the real value of existing debt (which is a tax on capital). (Ricardo forgot asset sales, but he was English and maybe the Crown selling off its property to raise revenue was not an option; at any rate, asset sales are not a repeatable strategy.)

Nothing has changed since Ricardo to make his observation less valid. So we will either get higher taxes now, much higher taxes in the future, or inflation. Which do you think it will be?

In a forthcoming article, Wylie Tollette and Gene Podkaminer, of Franklin Templeton, and I wrote,[3]

> Inflation is a ninja. A shock to global growth will flatten you, but you will see it coming... [But] inflation will kill you in stealth. It can creep up on you year after year. While inflation does not seem like a threat to portfolio values at this time, that is when investors should be most vigilant. Beware the ninja.

Myth #3. We are in a new era of technological change at breakneck speed where growth outperforms value permanently, or at least out as far as the eye can see.

- In an excellent 2019 white paper, Charles Dalziell and Graeme Shaw of Orbis, an investment firm in Australia, argue that value and growth follow cycles that are more or less predictable from valuation levels (not from the duration of the cycle), and that the cycle has not been repealed.[4] Thus they believe we are on the verge of a period of substantial outperformance for value. Because I'm contemplating writing my own paper on the topic, with similar findings, I'll just cut to the chase and quote their conclusion:

  Value has a long history of outperforming growth and while this has not happened since 2006, investors should require a strong argument before accepting [this] unusual performance…as a

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[3] Tollette, Wylie, Eugene Podkaminer, and Laurence B. Siegel. 2019. "Protecting Portfolios Against Inflation." Submitted to the *Journal of Investing*. Available at https://www.ftinstitutional.com/download/ftinstitutional-us/common/k5teiwzr/protecting-portfolios-against-inflation.pdf

[4] Dalziell, Charles, and Graeme Shaw. 2019. "Complacency Kills: The Party is Over for Growth Investing." Orbis Investment Advisory, Sydney, Australia, https://portfolioconstructionforum.edu.au/perspectives/complacency-kills-the-party-is-over-for-growth-investing/

permanent fixture. Falling interest rates and unusually rapid technological development are often cited as reasons for a paradigm shift to a world where growth stocks will permanently outperform value shares. [But,] when you look at the data, you find that *technology has not achieved a growth rate faster than what was achieved historically, and that historical return differences between value and growth have not been sensitive to large changes in interest rates.*[5]

Thus our conclusion is that "this time it's not different." A far simpler explanation is that growth stock outperformance began with the justifiable support of attractive valuations in 2006, but momentum has now carried this trend to a point where growth stocks look expensive and value stocks look cheap. This pattern is a recurring theme in the stock market: what begins in truth ends in farce. That is why we have cycles and this time around we believe the cycle is offering investors a real opportunity in value stocks.

The authors find that, in the eight previous periods of growth outperformance relative to value, the cumulative advantage of growth was 32%, *which is exactly the same as it was over 2006-2020*. The difference is that this period lasted 148 months while the others averaged only 26 and the longest, before the current one, lasted 56. But, remarkably, the subsequent value performance in excess of growth was 34% over one year, 52% over two years, and 54% over three years. Food for thought.

An old investment aphorism says that there is no successful investment strategy that can't be destroyed by a wall of money. The growth of sales and earnings of big tech have been very high, reflecting the "breakneck" speed of the changes, but the valuations have moved at even more of a breakneck speed. Nothing grows at a high rate forever.

Myth #4. We are in a new "bipolar" world of U.S. and Chinese dominance where those two economies are the only ones anyone should care about. Since it's hard to invest in China, a very large weight in the U.S. is a good idea, as it was in the 2010s.

- The U.S. had an equity market capitalization of $30,436 billion (that is, $30.4 trillion as of the end of 2018, and China $6,325 billion). The year 2018 is chosen because that is the latest date for which we have market caps for all countries. Here are the next 20 countries by market cap:[6]

[5] Italics added.

[6] https://www.indexmundi.com/facts/indicators/CM.MKT.LCAP.CD/rankings

Rank	Country	Market cap	Rank	Country	Market cap
3	Japan	5,297	13	Netherlands	1,100
4	Hong Kong, China	3,819	14	Brazil	917
5	France	2,366	15	South Africa	865
6	India	2,083	16	Spain	724
7	Canada	1,938	17	Singapore	687
8	United Kingdom	1,868	18	Russia	576
9	Germany	1,755	19	Italy	522
10	Switzerland	1,441	20	Thailand	501
11	Korea	1,414	21	Saudi Arabia	496
12	Australia	1,263	22	Indonesia	487

These "next 20" total $30,120 billion — almost exactly the same as the United States. Japan's market cap is almost as big as China's. And Taiwan, which is somehow "not a country," had a market cap of $1,202 billion, which would cause it to rank between Australia and the Netherlands and which would push the market cap of the "next 20" above that of the United States.[7]

Don't you think there are some stocks in those 20 or 21 countries that someone would want?

And let's not forget the fastest-growing economies in the world, according to nasdaq.com: Guyana, Ethiopia, Rwanda, Bangladesh, and India.[8] It might be hard to get stocks in the first three, but that won't always be the case, and Bangladesh is already in the MSCI Frontier index. India is a well-established emerging market and the case for investing there is well-known. And then there's booming Vietnam.

There are many enticing investment opportunities in the world, and the farther afield you go from the mainstream, the more likely you are to find overlooked companies. In the unlikely event that you have no views on any of these countries or companies, the efficient or Markowitz-optimal equity portfolio is the cap-weighted all-country portfolio of world equities. A number of index funds and ETFs offer this portfolio in pre-built form.[9]

Myth #5. Big data and AI/ML are the next big thing in active management.

- One of my most valued (and most brilliant) clients does this for a living, so I'll be careful. But Bryan Kelly, of Yale (formerly of the University of Chicago) and AQR, correctly points out that machine learning (ML), sometimes mislabeled artificial intelligence (AI), is just applied statistics. It is what you learned when you read Thomas Bayes (1702-1761) and Carl Friedrich Gauss

[7] The $1,202 billion market cap for Taiwan is a 2019 data point, not 2018.

[8] https://www.nasdaq.com/articles/the-5-fastest-growing-economies-in-the-world-2019-06-27

[9] More formally, there's a large literature on "home bias," the phenomenon where investors in a particular country overweight equities in that country. It's particularly prevalent in the U.S., which has a rich and varied domestic market, but is found everywhere. *Pace* the great Jack Bogle, who didn't agree with the case for global investing, home bias is mostly irrational and investors should resist it.

(1777-1855) in your advanced statistics class in business school. But statistical inference *feels* different, and works differently, when you apply it to really large amounts of data with really fast and cheap computers, hence the new terminology and media hoopla.

Kelly writes (caution—geeky),

> [The] canon of methods [comprises those] one would encounter in a graduate level machine learning textbook. This includes linear regression, generalized linear models with penalization, dimension reduction via principal components regression (PCR) and partial least squares (PLS), regression trees (including boosted trees and random forests), and neural networks.[10]

This sounds a lot — well, *exactly* — like what I learned (not very well) in a graduate level Statistical Methods in Economics course *in 1977*, except for the last two items, which were not in the course. What is new, again, is the speed of the computers, the sophistication of the programmers (the "trainers" of the "intelligent" machine), and the unprecedented abundance of data — not the thinking behind the methods.

Big data and AI/ML are a really big deal if you are a credit card company using applied statistics and endless computing power to mine the 369 billion transactions last year (on a planet with only 7.8 billion people) for information about consumers. But if you are humble stock picker mining the 300,000 monthly returns on 5,000 stocks for 5 years, or worse, an asset allocator with 772 independent 5-year returns across 39 markets from 1921 to 2019, your data set is small by Big Data standards and is matched to small incremental gains, relative to what you can accomplish using traditional analysis.

This is not to say that Professor Kelly is against machine learning. He's a major advocate of it. He just wants you to know the limitations and be able to cut through the hype.

Myth #6. Central bankers can get us out of any kind of scrape we get ourselves into. A flood of money into the economy is the pill that cures all ills.

- When you're a fireman, you benefit from an abundance of fires. When you're a central banker, which is a boring job except in economic emergencies, you benefit from emergencies. If you are always running to the rescue and perceived as successful, you become a rock star, asked for advice by kings and presidents, invited to the best parties, and feted in Michelin 3-star restaurants.

[10] Gu, Shihao, Bryan Kelly, and Dacheng Xiu. 2018. "Empirical Asset Pricing via Machine Learning." Presented by Bryan Kelly at the Q Group, Laguna Beach, CA (October 16), https://www.q-group.org/wp-content/uploads/2018/10/Kelly_MachineLearning_paper.pdf

This does not make for good policy. Looking at the fiscal side, John Maynard Keynes said that governments should engage in deficit spending *during downturns*, and build up a surplus or reserve during periods of growth, that is, most of the time; but today's so-called Keynesians think it's always an emergency, even though we haven't had an economic downturn in 11 years, so they are always trying to stimulate. On the monetary side we have something similar: the cure for every real or imagined threat to economic growth is lower interest rates and "easy money."

You could call this view of the world a "crisis crisis." Everything that happens is a justification for expensive intervention. This benefits the intervenors.

The first central bank intervention during the 2007-2008 meltdown was right and necessary. The continuing policy of quantitative easing was not. There is no evidence that it did any good — the recovery was slower than normal — yet unwinding the policy has the potential to do substantial harm. Central bankers should stop trying to be rock stars and should manage the money supply to a steady and predictable rate of growth.

Central bankers would do well to be more humble about what they can do, as Luis de Guindos, vice president of the European Central Bank, said at a Global Interdependence Center/Fundacion Rafael de Pino conference in Madrid. He noted that

> central banks are not almighty. We cannot address all the problems in the world… because…there are other actors in [the economy]… If we are humble and if we believe we are not the saviors of the world, there are other people [who] will start to take decisions in other areas of economic policy…. Central bank policy needs to respect the roles of fiscal policies, regulation, and labor market flexibility."[11]

We've argued elsewhere that the money supply is less tightly controlled by central banks that it used to be.[12] There are other providers of money and money-like instruments, including private lenders, money market funds, hedge funds, and cryptocurrency issuers. But the fact that central bankers have limited influence means that they should do less, not more, because of the law of unintended consequences. Their interventions have the same costs as before — the encouragement of borrowing, the penalizing of thrift, uncertainty about long-run inflation — but fewer benefits. Stop already.

Myth #7. The endowment model is still broken.

- It's still a myth. Most endowments are doing fine: not walking above us, or crashing in illiquid investments. Their performance has been workmanlike,

[11] https://www.interdependence.org/resources/central-banking-series-madrid-morning-session/# at 1:23:25 to 1:25:30. Quoted in an AJO communication, https://larrysiegel.org/conference-roundup-negative-interest-rates-and-the-end-of-the-age-of-experts/

[12] Siegel, Laurence B., and Stephen C. Sexauer. 2017. "Five Mysteries Surrounding Low and Negative Interest Rates." Journal of Portfolio Management (Spring). See, especially, "mystery #1."

just normal for what they set out to do. Endowment returns should not be compared to the S&P 500, which bears no resemblance to any benchmark that a perpetual endowment should have, but to the world market wealth portfolio or to their goal of earning enough to meet payout requirements and still remain whole in real terms.

The Nobel Prize-winning economist James Tobin said that "the trustees of endowed institutions are the guardians of the future against the claims of the present."[13] As such, they should pursue conservatory strategies, not maximally aggressive ones, and should be judged against the Tobin criterion. Thus, the (correct) statement that endowed institutions, as a class, have underperformed during the 2009-2020 bull market is misleading. They have, by and large, done what they were supposed to do. (Note that the world equity market delivered much lower returns than the U.S. market; moreover, long-term bonds far outperformed any conceivable expectation, so that endowments would have been irresponsible in taking the risk of holding them.)

We'd do well to remind ourselves that liquidity matters. As numerous market sages have said, "Liquidity is a coward. It runs at the first sight of trouble." Harvard and the University of Chicago painfully relearned this lesson in 2008-2009. But endowed institutions have developed technologies — mostly consisting of an Excel spreadsheet — for managing liquidity requirements in the face of significant allocations to illiquid assets. One large endowment, the Helmsley Trust, is led by Roz Hewsenian, who spoke at the Foundation Financial Officers Group in San Francisco in May 2019. She said, tongue firmly in cheek for the first part,[14]

> We classify assets into four liquidity categories. Now get ready — *this took a lot of thinking*: Safe, Liquid, Semi-Liquid, Illiquid. We define them literally in terms of how quickly we can get the money, regardless of whether that liquidity impairment is caused by the underlying illiquidity of the investment or by legal encumbrances such as gates and notification periods that affect how quickly you get your money back.

She went on to describe each category, then concluded that "by defining risk in terms of liquidity…, all the levers within an asset category were open to us." They did not have to limit exposure to illiquid assets out of fear; they were able to manage the process and achieve the desired balance between liquidity and other investment characteristics, such as expected return.

[13] Tobin, James. 1974. "What Is Permanent Endowment Income?" *American Economic Review,* Vol. 64, No. 2, (May), pp. 427-432.

[14] AJO communication, at https://larrysiegel.org/conference-roundup-you-must-have-a-very-successful-dentist-a-conversation-with-cios-linda-strumpf-and-roz-hewsenian/

Myth #8. The global economy can add 4 billion-plus people to the middle class and at the same time stop using carbon-based energy to support the quality of life as we know it.

- In the rich west we may be using too much energy, but an awfully large number of people in the world use too little. Mercy Njima, a Kenyan doctoral student, explains:[15]

  > Consider the women and children who spend hours every day searching for…energy resources… [O]nce they start burning biomass [e.g., wood], the acrid smoke causes serious lung disease… More people die from smoke inhalation than from malaria. [And,] because children have to help collect fuel during school hours, time spent on their education is severely reduced.

  You want to *take away* energy from these people?

  As Vaclav Smil, probably the world's leading energy expert, points out, energy transitions — wood to coal, coal to oil, and so forth – take a long time, because of the size of the installed base and the capital required to create a new energy infrastructure.[16] Sixty years is a typical transition time, but if we have a head start, as we do with nuclear power because much of the technology already exists, we may be able to speed that up some. But, in the meantime, developing countries will use more carbon, not less. Developed countries have already started to cut their carbon usage, with energy efficiency improving at about 1.5% per year globally. That rate compounds up pretty quickly, adding to a very substantial energy savings over time.

  The alternative, a carbon sudden stop, would condemn the 4 billion to eternal poverty and ourselves to something similar but not quite as bad. Energy is the master resource; carbon stores an awful lot of it very efficiently; and renewables such as solar and wind power are attenuated, pose serious storage problems, and use a lot of carbon in mining and transporting the needed materials.

  There's no easy answer. While we should most certainly try to mitigate carbon emissions, we should also devote resources to climate adaptation. And we shouldn't punish the world's poorest people for wanting to live a little more like we do.

Myth #9. We will be in a low-return environment in the near future.

- Not a myth, but reality based on the numbers.

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[15]Siegel (2019 – see footnote 18), quoting Diamandis, Peter, and Steven Kotler. 2012. *Abundance: The Future Is Better Than You Think.* New York: Free Press/Simon & Schuster. Diamandis and Kotler interviewed Ms. Njima.

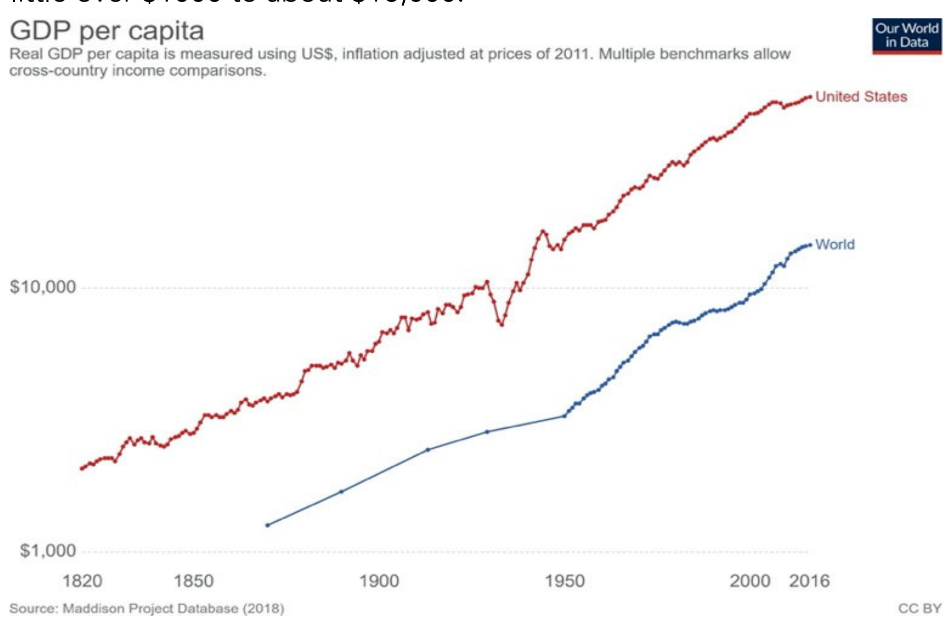
[16] Smil, Vaclav. 2014. "The Long, Slow Rise of Solar and Wind Energy: The Great Hope for a Quick and Sweeping Transition to Renewable Energy is Wishful Thinking." *Scientific American* (January). http://www.vaclavsmil.com/wp-content/uploads/scientificamerican0114-521.pdf.

It depends, of course, on what you mean by the near future. Truly short-term forecasts are worthless, but we can make generalizations about the next five or ten years. The 10-year real Treasury bond (TIPS) yield tells you exactly what market participants collectively expect the real riskless return to be over the next 10 years: -0.44% per year.[17] That's a low return environment. It reminds me of Will Rogers' wisecrack that "I am not so much concerned with the return *on* capital as I am with the return *of* capital." Today, what he said is not that funny: in riskless bonds, you will not get all your capital back, in real terms.

In the equity markets, the expected real total return (including dividends) is given roughly by the inverse of the P/E — not the CAPE, but the current P/E. With the S&P around 3000 and current (average of trailing and forecast) S&P earnings around $169, the P/E is 17.8. Taking the reciprocal of the number, that's a real total return of 5.6%. Not too shabby in a zero real interest rate environment, but appreciably lower than the historical average return on equities.

Myth #9½. We will be in a low-return environment for the indefinite *future.*

- This is completely wrong, and totally a myth. Look at the diagram below, from my book, *Fewer, Richer, Greener* (the exhibit originally appeared on Max Roser's wonderful website, OurWorldInData.com).[18] Over the last 200 years, U.S. GDP per capita has mushroomed from around $3000, in today's money, to a little more than $60,000. Global GDP per capita has grown, over a somewhat shorter period (because the global data start later), from a little over $1000 to about $18,000.



[17] As of March 4, 2020. This volatile number will be out of date by the time you read it, but it is unlikely to have risen to anything resembling a decent return.

[18] Please visit http://www.FewerRicherGreener.com for an overview of my book and a link to its Amazon page. Siegel, Laurence B. 2019. *Fewer, Richer, Greener: Prospects for Humanity in an Age of Abundance.* Hoboken, NJ: John Wiley & Sons.

Remarkably, the *world* average is now approximately what the *U.S.* average was in 1949, when the U.S. was incontestably a first world country.

Can you think of any reason why this growth should suddenly stop, or slow dramatically? While there are fluctuations in the growth rate — the U.S. has been a laggard since about 2007 — the overall trend should continue along the path that it has followed in the past, because people keep innovating in an effort to do more with less. And innovation is what causes incomes, and thus corporate profits and stock prices (which follow incomes pretty closely in the very long run), to rise.

Betting against human ingenuity and the desire to better one's condition is a fool's game. The democratization of wealth in the last half century — with some of the world's poorest countries emerging as big success stories (Bangladesh and Vietnam come to mind) — has been amazing. Africa has started along this path too, mostly just in this new century. It is the first big break the world's poor have ever gotten, and I don't think it will stop. This broadening of the culture of prosperity will take a lot of capital, and will reward risk-takers on average over the long run. Investors should look beyond the United States for opportunity in the rest of this century.

But don't write off the United States either. In the U.S., where we have a deep store of human and physical capital as well as the long-established rule of law, we'd look to several ways of bringing about a sustained jump in productivity and labor force growth, with its associated gains in GDP, sales, and profits. These include a much-needed fix to our immigration policies, a better balance on regulation, and exploiting the new technologies of genomic engineering, ecoengineering, and AI/ML (even if the last is really just applied statistics). The future will be fascinating — as investors, let's think creatively about profiting from it.

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